# STEPS
### Sunrise Training & Education Programs

## Power Technical Training
*Including Specialty Controls and IR*

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| MANUAL | POWER | ADULT | PEDIATRICS | SEATING | GERIATRICS | CONTROLS | FUNDING |

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## Agenda & Objectives

**Course Outline**
- Intro – Tech Website – Overview
- Mid Wheel Drive & Rear Wheel Drive Chair – Quick Overview
- **Electronics**
- VR2 Standard Electronics
- R-Net 90 Amp – PM-120 with All options
- **Programming**
- R-Net including OBP – On Board Programming
- PC Programming
- Specialty Controls
- Setup and Operation
- **Blue Tooth** Setup and Operation
- **Input / Output** Module
  - Usage & Adjustment
- **IR** Setup and Operation
  - Delete and Rename
- **Assignable Buttons**
  - Setting Second Function
- Mid Wheel Drive & Rear Wheel Drive Chair
  - Base including Suspension on all Power
- **Seating** - ASAPII Seating
- Seating Controls
- **Diagnostics** Overview

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## The People Behind the Power

# Technical Website

**http://bcove.me/yop9cmw6**

# Technical Website

# Technical Website

## Rehab Power Ladder Example

- For Mid Wheel Drive (MWD)

QM-710 w/ Rnet
MPC – K0861

QM-7 Series Rnet
SC – K0856

Pulse 6 -
SC – K0856

QM-710 w/
Rnet BC – K0848

Pulse 6 –
BC – K0848

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## Mid & Rear Wheel Drive Power Family
## (All Qualify as Group 3)

**Pulse 6
MWD**

**S-636
RWD**

**QM-710
MWD**

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## Rehab Power Ladder Example

For Rear Wheel Drive (RWD)

Quickie 646
K0877 & K0884

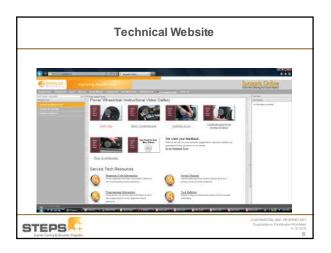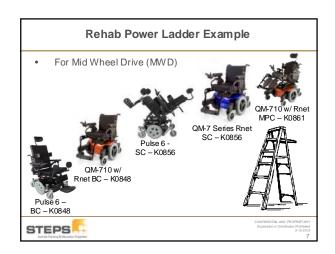**Quickie S636**
K0856 & K0861

Quickie P222 SE
K0877

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## Power: Simple and Reliable

Is the manufacturer focused?

Do they specialize in Group 3 Power with varying models?

- Proven Reliability in Components
- Motors
- Electronics
- Tilt Module
- Made in the USA

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## Electronic Selection

- Standard Level Package
  - Penny & Giles VR-2
    - Programmable
      - With hand held or PC programmer
      - 1 profile with 5 speed increments
      - 5 profiles with 1 programmed speed
    - 90 amp controller
      - Uses the same parameters as Qtronix
      - Provides activation of 2 power options through the joystick
    - Controller to be used with a joystick only
      - Not expandable.

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## Standard Electronics Package

- VR2 Electronics Operation
  4 or 6 Button Joystick:
  - This joystick has a GREEN On-Off switch with RED horn
  - Top display gives indication of both battery capacity and Diagnostic Codes.
  - The center indicators are 5 individual YELLOW LED lights that indicate
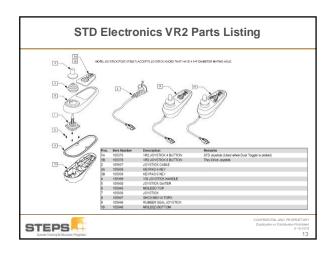    - Either Speed (if module is set to "0" profile)
    - Or individual lights indicating separate drive profiles up to 5.
    - The operation of those indicators is accomplished by pressing the right Speed/Drive select to increase or the left Speed/Drive select to decrease the speed or drive.
  - The Actuator or Seating buttons indicate via a RED LED that it is active and a Forward and Reverse action to operate the actuator.
  - The 4-pin connector connects to a communication 4-pin connector that connects back to the Motor Control.

**Features:**
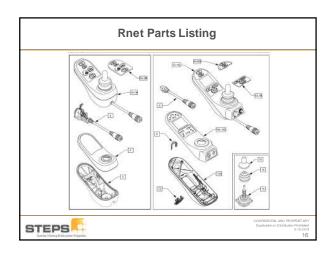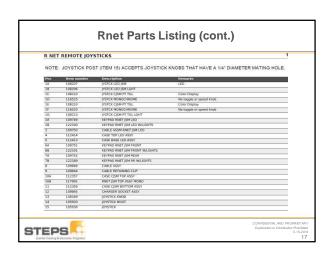Battery Display
On/ Off Switch
4 Pin Cable
Horn
Speed/Drive Select
Increase / Decrease
Actuator Operation

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## STD Electronics VR2 Parts Listing

NOTE: JOYSTICK POST (ITEM 7) ACCEPTS JOYSTICK KNOBS THAT HAVE A 1/4" DIAMETER MATING HOLE.

| Pos. | Item Number | Description | Remarks |
|---|---|---|---|
| 1A | 105375 | VR2 JOYSTICK 4 BUTTON | STD Joystick (Used when Dual Toggle is picked) |
| 1B | 105376 | VR2 JOYSTICK 6 BUTTON | Thru Drive Joystick |
| 2 | 105937 | JOYSTICK CABLE | |
| 3A | 105938 | KEYPAD 4 KEY | |
| 3B | 105939 | KEYPAD 6 KEY | |
| 4 | 138169 | VSI JOYSTICK HANDLE | |
| 5 | 105930 | JOYSTICK GAITER | |
| 6 | 105945 | MOLDED TOP | |
| 7 | 105936 | JOYSTICK | |
| 8 | 105947 | SHCS M5X14 TORX | |
| 9 | 105946 | RUBBER SEAL JOYSTICK | |
| 10 | 105940 | MOLDED BOTTOM | |

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## Electronics Selections

- High Range Package – 90 AMP Rnet
  - Penny & Giles R-net EL
    - Fully programmable, 5 profiles
      - With DTT or PC programmer
    - 90 amp controller
    - Uses the same parameters as R-net
      - Standard LED joystick or *Optional*
      - LCD or Color Screen available
    - Compatible with specialty controls & Attendant
    - Control

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## Electronics Selections

- High Range Package – PM-120 AMP R-net
  - Penny & Giles R-net EL
    - Fully programmable, 5 profiles
      - With DTT or PC programmer
    - 120 amp controller
    - Uses the same parameters as R-net
      - Standard LED joystick or *Optional*
      - LCD or Color Screens available
    - Compatible with specialty controls & Attendant
    - Control used for additional torque

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## Rnet Parts Listing

## Rnet Parts Listing (cont.)

**R NET REMOTE JOYSTICKS**

NOTE: JOYSTICK POST (ITEM 15) ACCEPTS JOYSTICK KNOBS THAT HAVE A 1/4" DIAMETER MATING HOLE.

| Pos | Item number | Description | Remarks |
|---|---|---|---|
| 1A | 108207 | JYSTCK LED JSM | LED |
| 1B | 108206 | JYSTCK LED JSM LGHT | |
| 1C | 108210 | JYSTCK CJSM PT TGL | Color Display |
| 1D | 116525 | JYSTCK MONOCHROME | No toggle or speed knob |
| 1E | 108210 | JYSTCK CJSM PT TGL | Color Display |
| 1F | 116525 | JYSTCK MONOCHROME | No toggle or speed knob |
| 1G | 108213 | JYSTCK CJSM PT TGL LGHT | |
| 2A | 109749 | KEYPAD RNET JSM LED | |
| 2B | 122190 | KEYPAD RNET JSM LED W/LIGHTS | |
| 3 | 109750 | CABLE ASSM RNET JSM LED | |
| 4 | 112414 | CASE TOP LED ASSY | |
| 5 | 112413 | CASE BASE LED ASSY | |
| 6A | 109751 | KEYPAD RNET JSM FRONT | |
| 6B | 122191 | KEYPAD RNET JSM FRONT W/LIGHTS | |
| 7A | 109752 | KEYPAD RNET JSM REAR | |
| 7B | 122189 | KEYPAD RNET JSM RR W/LIGHTS | |
| 8 | 109846 | CABLE ASSY | |
| 9 | 109844 | CABLE RETAINING CLIP | |
| 10A | 112357 | CASE CJSM TOP ASSY | |
| 10B | 117991 | RNET JSM TOP ASSY MONO | |
| 11 | 112356 | CASE CJSM BOTTOM ASSY | |
| 12 | 109845 | CHARGER SOCKET ASSY | |
| 13 | 138169 | JOYSTICK KNOB | |
| 14 | 105930 | JOYSTICK BOOT | |
| 15 | 105936 | JOYSTICK | |

## Electronics Programming
### 4 Possible Choices

- PP1 Programming    - VR2 Programming only

  QTRONIX or PP1

- D.T.T. Programming    - All Present Electronics

- On-Board Programming   Sequence   - All R-Net LCD JSM/Omni

- PC Programming    - R-Net – All Models

## Diagnostic Test Tool
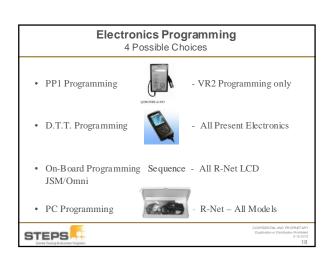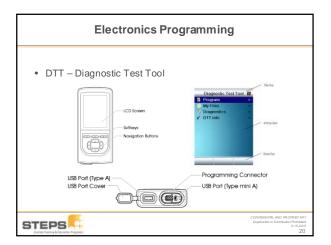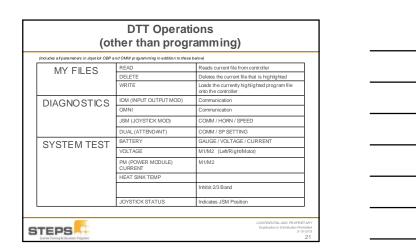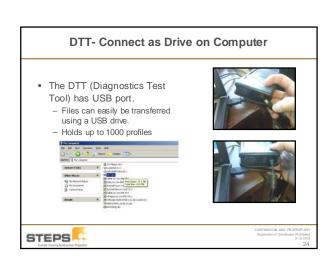
- The DTT (Diagnostics Test Tool) has USB port. Files can easily be transferred using a USB drive.
  - Holds up to 1000 profiles

The Diagnostic Test Tool has been designed specifically to assist technicians, engineers and specialists. The DTT allows users to access, program and share PG Drives Technology controller specific files in a convenient and effective way.

The Diagnostic Test Tool will allow users to:

- Program PG Drives Technology controllers.
- Read and save program files.
- Read and save diagnostic logs.
- Read real-time controller related information.
- Save and delete program files locally.
- Save program files to external storage devices, such as memory sticks.
- Manage program + system log files from PC's. When connected the DTT appears as a drive on the PC and all normal PC functionality exists.

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## Electronics Programming

- DTT – Diagnostic Test Tool

LCD Screen

Softkeys

Navigation Buttons

USB Port (Type A)
USB Port Cover

Programming Connector
USB Port (Type mini A)

Diagnostic Test Tool
- Program
- My Files
- Diagnostics
- DTT info

Title Bar

Active Alert

Scroll Box

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## DTT Operations
## (other than programming)

*(Includes all parameters in Joystick OBP and OMNI programming in addition to these below)*

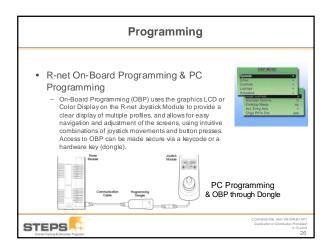| | | |
|---|---|---|
| MY FILES | READ | Reads current file from controller |
| | DELETE | Deletes the current file that is highlighted |
| | WRITE | Loads the currently highlighted program file onto the controller |
| DIAGNOSTICS | IOM (INPUT OUTPUT MOD) | Communication |
| | OMNI | Communication |
| | JSM (JOYSTICK MOD) | COMM / HORN / SPEED |
| | DUAL (ATTENDANT) | COMM / SP SETTING |
| SYSTEM TEST | BATTERY | GAUGE / VOLTAGE / CURRENT |
| | VOLTAGE | M1/M2  (Left/Right/Motor) |
| | PM (POWER MODULE) CURRENT | M1/M2 |
| | HEAT SINK TEMP | |
| | | Inhibit 2/3 Band |
| | JOYSTICK STATUS | Indicates JSM Position |

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## DTT Operations Continued
### (other than programming)

*(Includes all parameters in Joystick OBP and OMNI programming in addition to these below)*

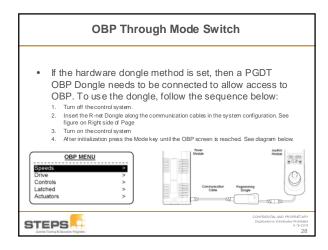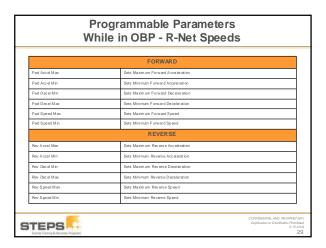| SYSTEM LOGS | IOM / OMNI / JSM / DUAL / PM | Lists faults and codes of connected modules |
|---|---|---|
| | MY LOGS | Save the System Log file into My Logs |
| SYSTEM TIMERS | How many hours has it been driven | |
| DTT INFO | Contains information pertaining to the DTT, including the software version. | |

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## DTT Operations

- Diagnostic Examples

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## DTT- Connect as Drive on Computer

- The DTT (Diagnostics Test Tool) has USB port.
  - Files can easily be transferred using a USB drive.
  - Holds up to 1000 profiles

## Electronics Programming



R-NET DTT PROGRAMMER KIT

115207 – DTT Kit

PROGRAMMER DTT R-NET

CABLE DTT R-NET — For R-NET Usage

CABLE DTT NEUTRIK — For VR2 Usage

Or Sequence without Dongle or Programmer

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## Programming

- R-net On-Board Programming & PC Programming
  - On-Board Programming (OBP) uses the graphics LCD or Color Display on the R-net Joystick Module to provide a clear display of multiple profiles, and allows for easy navigation and adjustment of the screens, using intuitive combinations of joystick movements and button presses. Access to OBP can be made secure via a keycode or a hardware key (dongle).

PC Programming & OBP through Dongle

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## On Board Programming Mode Key Sequence
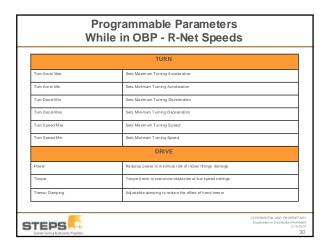
- If the keycode method is set, then the following button sequence will allow entry to OBP:
  - Note, a dongle will also allow OBP access if this method is set.

1. Hold down the Horn button and then hold down the On/Off button until there is a short bleep.
2. Power-up sound will occur prior to this bleep.
3. Release the Horn button, but continue to hold down the On/Off button until there is a further short bleep.
4. Release the On/Off button, there will now be a longer bleep and OBP mode will be entered.

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## OBP Through Mode Switch

- If the hardware dongle method is set, then a PGDT OBP Dongle needs to be connected to allow access to OBP. To use the dongle, follow the sequence below:
  1. Turn off the control system.
  2. Insert the R-net Dongle along the communication cables in the system configuration. See figure on Right side of Page
  3. Turn on the control system
  4. After initialization press the Mode key until the OBP screen is reached. See diagram below.



| OBP MENU | |
|----------|---|
| Speeds | > |
| Drive | > |
| Controls | > |
| Latched | > |
| Actuators | > |

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## Programmable Parameters
## While in OBP - R-Net Speeds

| FORWARD | |
|---------|---|
| Fwd Accel Max | Sets Maximum Forward Acceleration |
| Fwd Accel Min | Sets Minimum Forward Acceleration |
| Fwd Decel Min | Sets Maximum Forward Deceleration |
| Fwd Decel Max | Sets Minimum Forward Deceleration |
| Fwd Speed Max | Sets Maximum Forward Speed |
| Fwd Speed Min | Sets Minimum Forward Speed |
| **REVERSE** | |
| Rev Accel Max | Sets Maximum Reverse Acceleration |
| Rev Accel Min | Sets Minimum Reverse Acceleration |
| Rev Decel Min | Sets Maximum Reverse Deceleration |
| Rev Decel Max | Sets Minimum Reverse Deceleration |
| Rev Speed Max | Sets Maximum Reverse Speed |
| Rev Speed Min | Sets Minimum Reverse Speed |

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## Programmable Parameters
## While in OBP - R-Net Speeds

| TURN | |
|------|---|
| Turn Accel Max | Sets Maximum Turning Acceleration |
| Turn Accel Min | Sets Minimum Turning Acceleration |
| Turn Decel Min | Sets Maximum Turning Deceleration |
| Turn Decel Max | Sets Minimum Turning Deceleration |
| Turn Speed Max | Sets Maximum Turning Speed |
| Turn Speed Min | Sets Minimum Turning Speed |
| **DRIVE** | |
| Power | Reduces power to minimize risk of indoor fittings damage |
| Torque | Torque boost to overcome obstacles at low speed settings |
| Tremor Damping | Adjustable damping to reduce the effect of hand tremor |

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## Controls

| GLOBAL CONTROLS | |
|---|---|
| Steer Correct | Adjusts the PM output's to compensate for mis-matched motors |
| Sound Volume | Sets volume of audible feedback from JSM. |
| Endstop Beep | Sets whether there is a bleep when a seat axis reaches endstop |
| Act. Entry Axis | Sets the default axis when seat control mode is entered |
| Chge Prf in Drv | Sets whether profile changes are permissible while driving |
| Speed Adjust | Sets whether the speed buttons on the JSM are active |
| Speed Adj in Drv | Sets whether speed setting changes are permissible while driving |
| Momentary Screens | Sets Whether large screens appear at profile and speed changes |
| Rev Driving Alarm | Sets if the reverse driving alarm is active |
| Lock Function Enabled | Sets how the lock function is activated |
| Display Speed | Sets how the speedometer is displayed (miles or kilometers per hour) |
| Max Display Speed | Sets the operation of the graphical speed display |
| Power – Up Mode | Sets the Mode that will be active when the system is powered up |
| Display Speed | Displays the Speed – MPH – KM/H – or Off are choices |
| Max Display Speed | Displays Max Range of Speed – Sets 0.1 to 20 – set at motor speed |
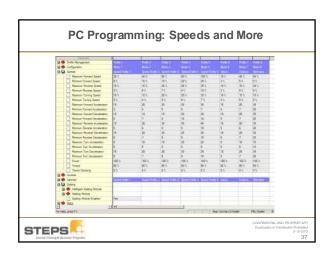
## Controls

| PROFILED CONTROLS | |
|---|---|
| Sleep Timer | Sets the time of inactivity before the system goes to sleep |
| Change Mode in Drive | Sets whether mode changes are permissible while driving |
| Background | Sets the default background for each profile joystick |
| JOYSTICK | |
| Active Throw | Sets joystick throw via joystick movements |
| Throw Detail | Sets joystick throw via programming |
| Active Orientation | Sets joystick orientation via joystick movements |
| Orientation Detail | Sets joystick orientation via programming |
| Deadband | Sets the joystick deadband (size of neutral position) |

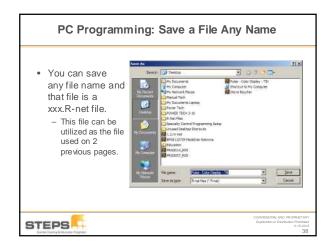## Controls

| STANDBY | |
|---|---|
| Switch to Standby | Sets whether an external button can be used to enter Standby Mode |
| Standby Time | Sets the time of inactivity before Standby Mode is entered |
| Mode Select | Sets whether other modes can be selected from Standby Mode |
| Remote Select | Sets whether a profile can be selected from Standby Mode |
| LATCHED | |
| Drive | Selects latched drive operation |
| Actuators | Selects latched actuator operation |
| Timeout | Sets the timeout period for latched operation |
| Timeout Bleep | Sets whether a bleep occurs as the timeout period approaches |

## Controls
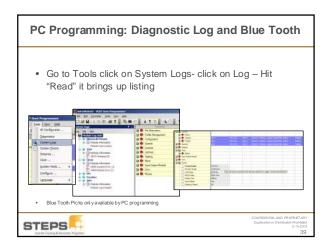
| SM ACTUATORS | |
|---|---|
| Away Speed | Sets actuator axis speed in the up direction |
| Home Speed | Sets actuator axis speed in the down direction |
| ISM ACTUATORS | |
| Away Speed | Sets actuator speed in the up direction |
| Home Speed | Sets actuator speed in the down direction |
| Acceleration | Sets actuator acceleration |
| Deceleration | Sets actuator deceleration |

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## Controls

| PROFILES | |
|---|---|
| Profile Enable | Sets which profiles are available to the user |
| **MODES** | |
| Modes | Sets which Modes are available in each profile |
| **INPUT DEVICES** | |
| ID Type | Sets which Input Device controls a Profile |
| **SYSTEM** | |
| Diagnostics | Accesses the system's error log |
| Timers | Accesses the system's run timer |
| Joystick Calibration | Automatic joystick calibration procedure |
| Copy Profiles | Utility to copy one profile to another |
| Load Presets | Restores factory preset values * |
| Adjust Contrast | Adjusts the contrast of the LCD screen |

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## PC Programming: Profile Name

## PC Programming: Speeds and More

## PC Programming: Save a File Any Name

- You can save any file name and that file is a xxx.R-net file.
  - This file can be utilized as the file used on 2 previous pages.

## PC Programming: Diagnostic Log and Blue Tooth

- Go to Tools click on System Logs- click on Log – Hit "Read" it brings up listing



- Blue Tooth Picks only available by PC programming

## Specialty Controls

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## Environmental Access
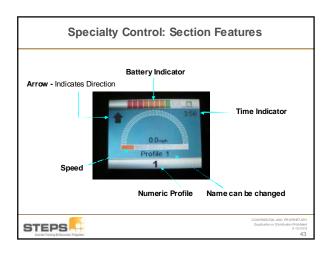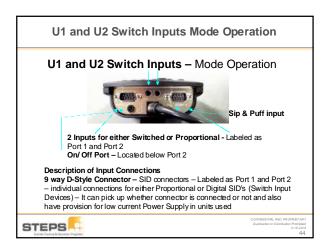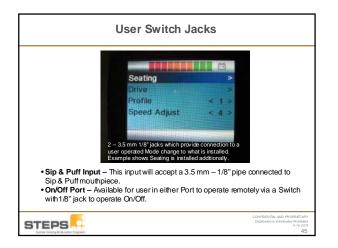
- IR (Infra Red) control is standard with all OMNI control packages

- The wheelchair user can use any Input Device connected to an OMNI control for operating IR controlled devices such as TVs and DVDs.

- Up to 100 programmable commands

- Bluetooth communications for PC Mouse Control with any Bluetooth compatible computer platform. Bluetooth control is the standard platform used for the wireless mouse.

- Operates from up to 10 meters away – no need for line of sight.

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## Specialty Control: Section Features

- General R-net interface for specialty controls
- Large, hi-resolution color display
- Dual channel inputs
- User selectable display - indoors/outdoors
- Customisable user menu
- Large, easy-to-read icons
- Programmable user text
- On-board configuration/programming
- Use standalone or with other R-net Input Devices
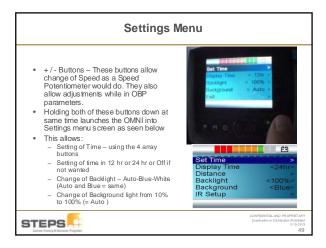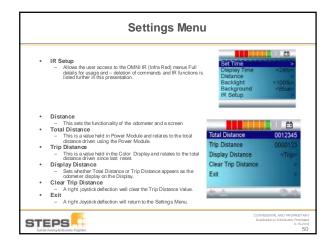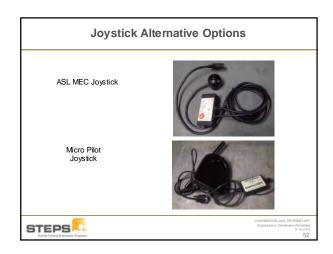- Can control all powerchair functions

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## Specialty Control: Section Features

**Battery Indicator**

**Arrow -** Indicates Direction

**Time Indicator**

**Speed**

**Numeric Profile**     **Name can be changed**

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## U1 and U2 Switch Inputs Mode Operation

### U1 and U2 Switch Inputs – Mode Operation

**Sip & Puff input**

**2 Inputs for either Switched or Proportional -** Labeled as Port 1 and Port 2
**On/ Off Port –** Located below Port 2

**Description of Input Connections**
**9 way D-Style Connector –** SID connectors – Labeled as Port 1 and Port 2 – individual connections for either Proportional or Digital SID's (Switch Input Devices) – It can pick up whether connector is connected or not and also have provision for low current Power Supply in units used

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## User Switch Jacks

Seating                 >
Drive                   >
Profile              < 1 >
Speed Adjust         < 4 >

2 – 3.5 mm 1/8" jacks which provide connection to a user operated Mode change to what is installed. Example shows Seating is installed additionally.

- **Sip & Puff Input –** This input will accept a 3.5 mm – 1/8" pipe connected to Sip & Puff mouthpiece.
- **On/Off Port –** Available for user in either Port to operate remotely via a Switch with 1/8" jack to operate On/Off.

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## Back View & Mounting of OMNI



**Sound/Beep Indicator**

IR Port

**Charger Port**

**2 Bolt Mounting**

**Using old style mounting from USCM**

M5 Threads
Maximum depth
10mm

All dimensions in millimeters

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## Control and Operational Buttons



LCD Screen

Profile
Mode
On/Off

Speed +/-
Navigation (OBP)

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## Display Description & Front Buttons

- LCD Screen
  - A full color, backlit LCD screen that can show configuration details and operating information to both dealer and user.
- ON/ Off Button
  - This button provides a complete Power Down of control system electronics. In addition to the button mounted there is a facility on the inputs for an optional, externally mounted switch that can be operated by the user for on/off usage.
- Mode Button
  - The mode button allows for the user to change between available programmed Modes.
- Profile Button
  - The profile button allows for user to change between available programmed Profiles or Drives.
- Navigation Buttons
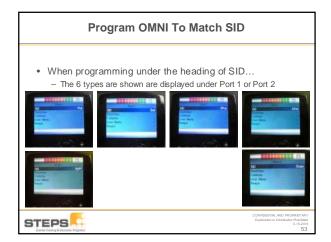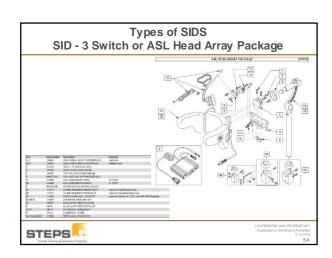  - The array of 4 buttons allow Dealer to navigate between OBP screens.

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## Settings Menu

- + / - Buttons – These buttons allow change of Speed as a Speed Potentiometer would do. They also allow adjustments while in OBP parameters.
- Holding both of these buttons down at same time launches the OMNI into Settings menu screen as seen below
- This allows:
  - Setting of Time – using the 4 array buttons
  - Setting of time in 12 hr or 24 hr or Off if not wanted
  - Change of Backlight – Auto-Blue-White (Auto and Blue = same)
  - Change of Background light from 10% to 100% (= Auto )

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## Settings Menu

- **IR Setup**
  - Allows the user access to the OMNI IR (Infra Red) menus Full details for usage and – deletion of commands and IR functions is listed further in this presentation.

- **Distance**
  - This sets the functionality of the odometer and a screen
- **Total Distance**
  - This is a value held in Power Module and relates to the total distance driven using the Power Module.
- **Trip Distance**
  - This is a value held in the Color Display and relates to the total distance driven since last reset.
- **Display Distance**
  - Sets whether Total Distance or Trip Distance appears as the odometer display on the Display.
- **Clear Trip Distance**
  - A right joystick deflection well clear the Trip Distance Value.
- **Exit**
  - A right Joystick deflection will return to the Settings Menu.

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## Program OMNI To Match SID

- The OMNI is compatible with Six Types of SID
  - 1. Joystick
  - 2. Five Switch
  - 3. Three Axis Proportional
  - 4. Three Axis Switch
  - 5. Sip & Puff  and User Switch
  - 6. Single switch scanner

| SID Setting | SID Type |
|---|---|
| Proportional | Joystick and User Switch |
| Switch | Five switch and User Switch |
| 3-Axis Proportional | Three axis proportional and User Switch |
| 3-Axis Switch | Three axis switch and User Switch |
| Sip Puff | Sip and Puff device and User Switch |
| Scanner | Single switch scanner |

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## Joystick Alternative Options

ASL MEC Joystick



Micro Pilot
Joystick

---

## Program OMNI To Match SID

- When programming under the heading of SID…
  - The 6 types are shown are displayed under Port 1 or Port 2

---

## Types of SIDS
## SID - 3 Switch or ASL Head Array Package

## R-Net Specialty Control Set-up Guide

- 3 Switch Head Array
  - (Please use these instructions as a guide only. Due to multiple options, it is important to select the correct set-up to meet the individual needs of the user.)
  - Enter On-Board Programming (OBP) Thru the OMNI Display
    - Connect up Dealer dongle to cable assembly
    - Reset the Power and Press the Mode Button.
    - Press the Mode button until OBP comes up on Screen follow details below

- Step 1 – Setting up the Motor Controller Drive Profile(s) for the appropriate Specialty Input Device (SID)
  - Scroll down using the directional buttons on the OMNI display to Input Devices. Use the Right navigation button to select.
  - The input device either needs to be "Uni" for universal input, or "Omn" for OMNI Display. Use the + & - buttons to select the desired SID.
  - Left Navigation button back to Main OBP menu. This will save your changes.

## R-Net Specialty Control Set-up Guide

- Step 2 – Set Up From OMNI
  - From the main OBP menu, highlight 'OMNI' and select by pressing the right directional button on the OMNI display.
  - Scroll down to "Profiles" using the directional buttons, and select by pressing the right navigation button.
  - There are two Specialty Control Ports on this OMNI display, when setting up a specialty control we need to identify which port will be used.
  - Set all profiles you would like to control with the Specialty control device to Port 1. Left navigation button twice to save your changes.
  - Use the down navigation button to highlight "Port 1", and select using the right navigation button.
  - "SID" is the first programming option in this menu. Use the + & - signs on the OMNI to select '3Swi'.
  - Scroll down to Switches – and select using right navigation button.
  - Confirm "User Switch" is set to "NO" (normally Open). (If it is not, change to "NO" using the OMNI's "+ & -" buttons)
  - Left navigation button twice – Back to the OMNI OBP menu.

## R-Net Specialty Control Set-Up Guide

- Reverse Options:
  - Double Click Time - programmable from 0-2.5 Seconds in 1.0 increments
    - A single operation of the user switch toggles directions.
    - A double operation of the user switch will enter into user menu.
  - Forward / Reverse Auto Toggle - Programmable On or Off
    - Direction change will occur if a forward/reverse command is operated and released (rear pad of headrest).
    - Further operation of the of the rear head pad will result in drive in the newly selected direction.
  - Switch Medium - Programmable from 0-5 in .25 increments
    - A directional change occurs at the instant the user switch is operated.
    - If the user switch is released and a forward/reverse is given, then drive will commence in the newly selected direction.
      - Double Click Time must be set to 0
      - Make sure your Switch medium & switch long settings are not the same
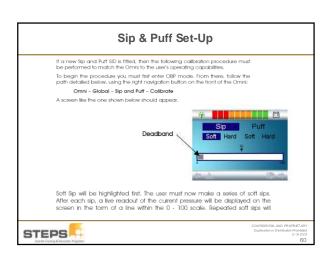
## R-Net Specialty Control Set-Up Guide

- Automatic Menu Scan:
  - If you want to program an Automatic Menu Scan so when the client selects mode for a drive profile, the User Menu with automatically scan thru the options…
  - this can be done in Std. programming. Go to OMNI / Port 1 / Controls / Menu Scan Rate.
    - Menu Scan Rate is programmable in ¼ second intervals from 0 to 10 seconds. (This function is Off when set to 0)
      - If your mode button is built into your switched input device you may also need to turn off the User switch detect.
    - From the Main Menu in OBP… Highlight "OMNI" and select using the right navigation button.
      - Highlight "Port 1" and select.
      - Highlight "Switches" and select.
      - Highlight "Switch Detect" and using the + / - buttons change to "OFF".
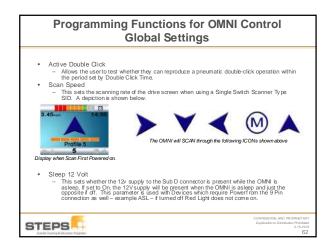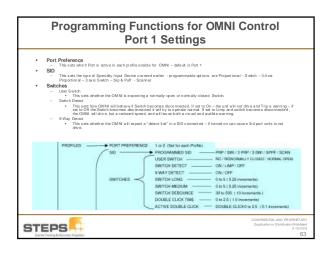
58

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## Programming Functions for OMNI Control
## Global Settings

- **Puff Threshold**
  - This sets the threshold point between soft and hard puffs – 10 – 100 – 1.0 increments
- **Sip Threshold**
  - This sets the threshold point between soft and hard puffs – 10 -100 – 1.0 increments
- **Dead Band**
  - This sets the size of the sip/puff neutral area. How much pressure the user must apply with either a sip or a puff before the brakes of chair are released to drive.
- **Double Click**
  - Two pneumatic operations made with the period set by parameter, mimic a short operation of the User switch in Standby. This sets whether a double Soft or a double Hard command is required
- **Double Click Time**
  - Sets the period of time which two pneumatic commands must be detected.
  - 0 – 2.5 set if set to 0 seconds no double click facility will be supported.

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---

## Sip & Puff Set-Up

If a new Sip and Puff SID is fitted, then the following calibration procedure must be performed to match the Omni to the user's operating capabilities.

To begin the procedure you must first enter OBP mode. From there, follow the path detailed below, using the right navigation button on the front of the Omni:

Omni – Global – Sip and Puff – Calibrate

A screen like the one shown below should appear.



Soft Sip will be highlighted first. The user must now make a series of soft sips. After each sip, a live readout of the current pressure will be displayed on the screen in the form of a line within the 0 - 100 scale. Repeated soft sips will
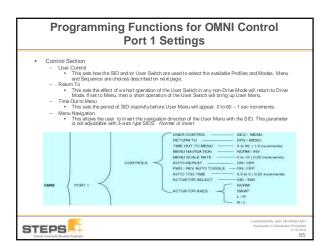
60

## Sip & Puff Set-Up

- The user must now make a series of hard sips to produce a new "Hard Sip" band. Ideally, there should be as much difference as possible between the Soft Sip and Hard Sip values.
- The default for Threshold is 50 – once values are saved it is mentioned for optimizing to set Threshold to the mid point between soft and hard. This is done with the + and – buttons on the front of the OMNI
- Now repeat the sequence of instructions as above for both soft and hard puffs including the Threshold Setting. Once calibration has been done, use the right navigate button on the front of the OMNI to return to the Calibrate option in the Sip and Puff branch of OBP.

Threshold Marker

STEPS

---

## Programming Functions for OMNI Control
## Global Settings

- Active Double Click
  - Allows the user to test whether they can reproduce a pneumatic double-click operation within the period set by Double Click Time.
- Scan Speed
  - This sets the scanning rate of the drive screen when using a Single Switch Scanner Type SID. A depiction is shown below.

Profile 5

Display when Scan First Powered on.

*The OMNI will SCAN through the following ICONs shown above*

- Sleep 12 Volt
  - This sets whether the 12v supply to the Sub D connector is present while the OMNI is asleep. If set to On, the 12V supply will be present when the OMNI is asleep and just the opposite if off. This parameter is used with Devices which require Power from the 9 Pin connection as well – example ASL – if turned off Red Light does not come on.

STEPS

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## Programming Functions for OMNI Control
## Port 1 Settings

- **Port Preference**
  - This sets which Port is active in each profile enable for OMNI – default is Port 1
- **SID**
  - This sets the type of Specialty Input Device covered earlier - programmable options are Proportional – Switch – 3-Axis Proportional – 3 axis Switch – Sip & Puff - Scanner.
- **Switches**
  - User Switch
    - This sets whether the OMNI is expecting a normally-open or normally closed Switch.
  - Switch Detect
    - This sets how OMNI will behave if Switch becomes disconnected. If set to On – the unit will not drive and Trip a warning – if set to Off the Switch becomes disconnected it will try to operate normal. If set to Limp and switch becomes disconnected, the OMNI will drive, but a reduced speed, and will issue both a visual and audible warning.
  - 9-Way Detect
    - This sets whether the OMNI will expect a "detect link" in a SID connected – if turned on can cause 3rd part units to not drive.

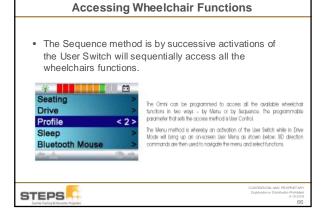| PROFILED | PORT PREFERENCE | 1 or 2 (Set for each Profile) |
| --- | --- | --- |
| | SID | PROGRAMMED SID — PRP / SWI / 3 PRP / 3 SWI / SPPF / SCAN |
| | | USER SWITCH — NC / NONORMALLY CLOSED / NORMAL OPEN |
| | | SWITCH DETECT — ON / LIMP / OFF |
| | | 9-WAY DETECT — ON / OFF |
| | SWITCHES | SWITCH LONG — 0 to 5 ( 0.25 increments) |
| | | SWITCH MEDIUM — 0 to 5 ( 0.25 increments) |
| | | SWITCH DEBOUNCE — 30 to 500 ( 10 increments ) |
| | | DOUBLE CLICK TIME — 0 to 2.5 ( 1.0 increments) |
| | | ACTIVE DOUBLE CLICK — DOUBLE CLICK 0 to 2.5 ( 0.1 increments) |

STEPS

## Programming Functions for OMNI Control
## Port 1 Settings

- Switches
  - Switch Long
    - This sets the period of time the User Switch must be operated in order to put the OMNI into the sleep mode. 0.5 sec to 5.0 sec in steps of 0.25s.
  - Switch Medium
    - The parameter is intended for 3 Axis Proportional and Switch Type SIDS only – direction change occurs at the instant the User Switch is operated, provided the parameter Double-Click has been set to 0. If User switch is release and a Forward/Reverse command is entered, then drive will continue in the newly selected direction. If the User Switch is not released and is held for a time period set by the programmable parameter, Switch Medium will see it as a conventional User Switch operation. 0.5 sec to 5.0 sec in steps of 0.25s
  - Switch Debounce
    - This sets the debounce time for the User switch. Debounce is period of time the switch is operated continuously before a new condition can be registered. 30 – 500 – increment 10
  - Double Click
    - This sets the period of time during which two User Switch clicks must be detected. In order to interpreted as a double-click. *0 – 2.5 – 0.1 increments*
  - Active Double Click
    - The parameter allows user to set and test the Double Click Speed . Note: This parameter is only available in OBP.

---

## Programming Functions for OMNI Control
## Port 1 Settings

- Control Section
  - User Control
    - This sets how the SID and/or User Switch are used to select the available Profiles and Modes. Menu and Sequence are choices described on next page.
  - Return To
    - This sets the effect of a short operation of the User Switch in any non-Drive Mode will return to Drive Mode. If set to Menu, then a short operation of the User Switch will bring up User Menu.
  - Time Out to Menu
    - This sets the period of SID inactivity before User Menu will appear. 0 to 60 – 1 sec increments.
  - Menu Navigation
    - This allows the user to invert the navigation direction of the User Menu with the SID. This parameter is not adjustable with 3-axis type SIDS. *Normal or Invert*

---

## Controls - User Control
## Accessing Wheelchair Functions

- The Sequence method is by successive activations of the User Switch will sequentially access all the wheelchairs functions.



The Omni can be programmed to access all the available wheelchair functions in two ways – by Menu or by Sequence. The programmable parameter that sets the access method is User Control.

The Menu method is whereby an activation of the User Switch while in Drive Mode will bring up an on-screen User Menu as shown below. SID direction commands are then used to navigate the menu and select functions.

## Programming Functions for OMNI Control
## Port 1 Settings

- Control Section
  - Menu Scan Rate
    - This sets the scanning rate for the User Menu, Lights Menu, Menu and Settings Menu. 0 to 10 -- 0.25 increments – set to 0 no scanning and default.
  - Auto-Repeat
    - This sets whether there is an auto-repeat function on the direction commands for various SIDs. Auto-repeat means that successive commands will be applied if the switch is continuously operated, which is useful when navigating the User Menu. Not desirable for head control applications. On – Off
  - Fwd/Rev Auto Toggle
    - This sets another method of changing direct with 3-Axis SIDs. This has no effect with any other type of SID – On or Off. If set to On, than an operation of the SID's Fwd/Rev command can be used to change the selected drive direction. This is achieved by operating and releasing the Fwd/Rev command within a 2 second period. This will change direction of drive, then the Fwd/Rev command must be operated again within a further 2 seconds. If this 2 second period passes without a Fwd/Rev command, the selected drive direction will revert to original setting.
      - Note: This will not work with Latch and will result in a **Bad Setting Error** appearing.
  - Actuator Selection
    - This sets whether actuator is selected via SID commands or User Switch

---

## Programming Functions for OMNI Control
## Port 1 Settings

- Control Section
  - Actuator Axis
    - This sets which SID direction commands are used to select available axes. Not available for Single Switch Scanner. Settings for Actuator Axis are as follows:
      - Normal
        » Left and Right commands will select available actuator axis, and forward and reverse commands will move actuator(s).
      - Swap
        » Forward and Reverse commands are used to select available axis, and left and right commands will move the actuator(s).
      - Left/Right
        » A left command will select the available actuator axis and right command will move the selected actuator(s). The reversal of operation (toggling) is change via a short operation by a right command.
      - Right/Left
        » A right command will select the available actuator axis and left command will move the selected actuator(s). The reversal of operation (toggling) is change via a short operation by a right command.
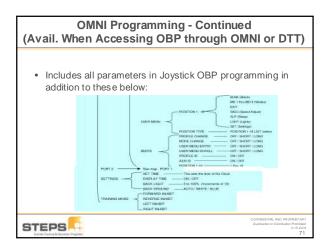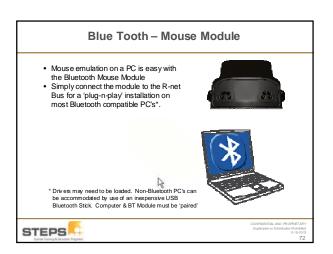
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## Using the OMNI With Two SIDS

- There are 5 programming Steps to Follow:
  1. Decide which Profiles are associated with OMNI whenever deciding on SIDs.
  2. Decide which Port to select for each of the SIDS – a selection of Port 1 or Port 2.
  3. Set the Parameter Profile Enable only required profiles.
  4. Ensure the Parameter Mode Enable is set to enable the required Modes for Both SIDS.
  5. Decide upon appropriate names for each of the Profiles and set the Profile Name accordingly using the PC Programming.

## OMNI Programming
### (Avail. When Accessing OBP through OMNI or DTT)

- Includes all parameters in Joystick OBP programming in addition to these below:

**STEPS**

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## OMNI Programming - Continued
### (Avail. When Accessing OBP through OMNI or DTT)

- Includes all parameters in Joystick OBP programming in addition to these below:

**STEPS**

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## Blue Tooth – Mouse Module

- Mouse emulation on a PC is easy with the Bluetooth Mouse Module
- Simply connect the module to the R-net Bus for a 'plug-n-play' installation on most Bluetooth compatible PC's*.

* Drivers may need to be loaded. Non-Bluetooth PC's can be accommodated by use of an inexpensive USB Bluetooth Stick. Computer & BT Module must be 'paired'

**STEPS**

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### Blue Tooth - Mouse Module
### R-Net Only

- You will need
  - Power Module
  - Bluetooth Module
  - Input Device Module e.g. JSM or OMNI with a specialized input device like a Penta switch.
    - A standard JSM will be assumed for the rest of this example.

1. When you connect the system for the first time it will go through configuration **"handshaking"** and ask to be turned off and on again.

2. When this is completed enter Bluetooth mode by pressing the 'Mode' button on the JSM. **Bluetooth mode is represented on the LCD by a laptop symbol displaying the Bluetooth logo.**

3. Slowly deflect the joystick in a full forward direction and **hold for 10 seconds**, at which point a beep will be heard. (N.B. entering Bluetooth mode and deflecting the joystick must occur within 10 seconds of the system being turned on to work correctly).

4. After the beep, **deflect the joystick in full reverse** until it beeps again (about 10 seconds).

5. Release the joystick.

6. R-net Bluetooth is now in Discovery mode, so can be picked up as a Bluetooth device by the PC.

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### Blue Tooth - Mouse Module
### PC Setup

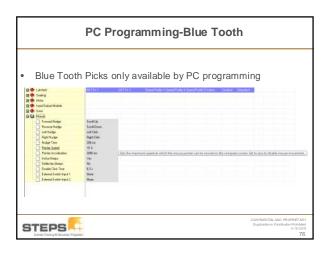- On your PC, in Control Panel go to 'My Bluetooth Places'.
- When you open 'My Bluetooth Places' click 'Add'.
- Tick the box 'My device is set up and ready to be found'.
- This will tell the PC to pick up Bluetooth devices in range.
- A device called 'PG Drives Bluetooth Mouse' should appear in the window.
- Click on the 'PG Drives Bluetooth Mouse'. This brings up a window called Bluetooth wizard with 4 options relating to how to connect using passkeys.
- Select option 3, and enter the Pairing code '0000'.
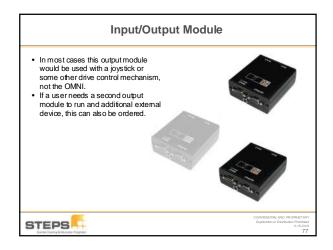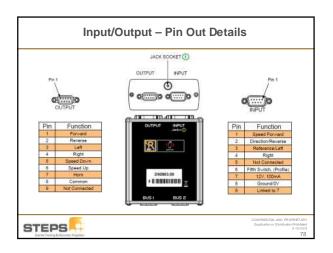- This pairs the R-net Bluetooth mouse with the PC.

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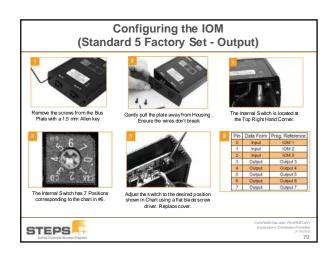---

### Blue Tooth - Mouse Module
### Programming on PC

- There is programmability for users that cannot operate the Speed Up / Down buttons. This is accessible via the Bluetooth branch of the PC programmer. (Shown on Next Page)
- The parameter is called 'Nudge'. A Nudge is defined as a quick deflection of the joystick or Specialty Control in one direction.
- There are 4 Nudge functions, each of which can be programmed to act as Scroll Up, Scroll Down, Left Click, and Right Click:
  1. Forward
  2. Reverse
  3. Left
  4. Right
- There is "New" Pointer Speed and Acceleration that allow changes to speed of Pointer and the Acceleration across the screen.
- There is "New" External Switches that are available for clients that cannot get the Nudge function but can hit a Switch.
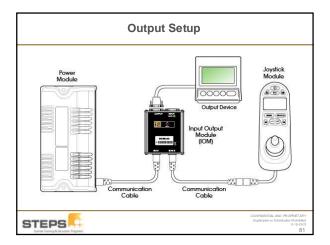
75

## PC Programming-Blue Tooth

- Blue Tooth Picks only available by PC programming

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## Input/Output Module

- In most cases this output module would be used with a joystick or some other drive control mechanism, not the OMNI.
- If a user needs a second output module to run and additional external device, this can also be ordered.

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## Input/Output – Pin Out Details



| Pin | Function |
|-----|----------|
| 1 | Forward |
| 2 | Reverse |
| 3 | Left |
| 4 | Right |
| 5 | Speed Down |
| 6 | Speed Up |
| 7 | Horn |
| 8 | Common |
| 9 | Not Connected |

| Pin | Function |
|-----|----------|
| 1 | Speed Forward |
| 2 | Direction/Reverse |
| 3 | Reference/Left |
| 4 | Right |
| 5 | Not Connected |
| 6 | Fifth Switch, (Profile) |
| 7 | 12V, 100mA |
| 8 | Ground/0V |
| 9 | Linked to 7 |

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## Configuring the IOM
### (Standard 5 Factory Set - Output)



Remove the screws from the Bus Plate with a 1.5 mm Allen key

Gently pull the plate away from Housing. Ensure the wires don't break.

The Internal Switch is located at the Top Right Hand Corner.

The Internal Switch has 7 Positions corresponding to the chart in #6.

Adjust the switch to the desired position shown in Chart using a flat blade screw driver. Replace cover.

| Pin | Data Form | Prog. Reference |
|-----|-----------|-----------------|
| 0 | Input | IOM 1 |
| 1 | Input | IOM 2 |
| 2 | Input | IOM 3 |
| 3 | Output | Output 3 |
| 4 | Output | Output 4 |
| 5 | Output | Output 5 |
| 6 | Output | Output 6 |
| 7 | Output | Output 7 |

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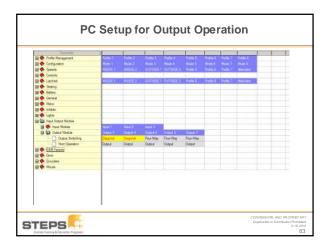## Input Setup
### Configuring for Input Device

Input Example:
- To fit a Head Array Switch unit, without a Rebus Connector, into a control System:
  1. Set the internal switch to Position 0.
  2. Connect the IOM to the R-Net control System.
  3. Connect the Head Array to the IOM 9 Pin Sub D Input Connector.
  4. Turn the Control System on using the Head Array On/Off Control, or an On/Off switch connected to the IOM's On/Off jack socket.

- Details: The PM or Power Module is factory set to give control to the Input Device that has been used to Power it up. It is therefore possible to connect multiple input devices via IOM's. It is also possible to assign specific Input Devices to specific Profiles
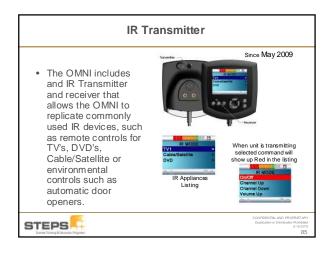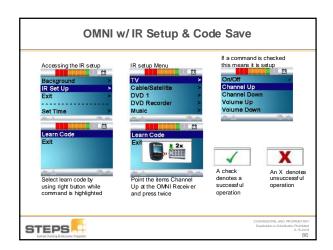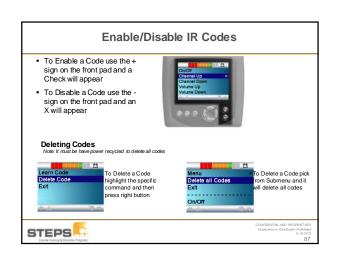
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## Output Setup

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## Output Setup
## Configuring Output Device & Specs

Output Functions:
- To fit an Environment Control Module, without Bus Bar, into a control system.
  – Set the internal switch to Position 5
  – Connect the IOM to the R-Net Control System.
  – Connect the Environment Control Module to the IOM 9 Pin Sub D Output connector.
  – Turn the Control System on and use the Mode Button to move to Mode 5.
- The PM (power Module) – is factory set to accept IOM Output Devices in Modes 5, 6, and 7 when the internal switch is set to 5, 6, & 7 respectively. It is possible to connect up to 3 IOM as Output devices. You may have to adjust the programming parameters to ensure Input device is selected accordingly.

**4-Way Control**
Only one output can be switched at one time. The output direction to joystick x-y data is shown on the side.
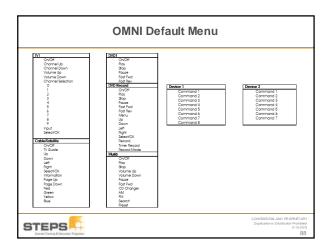
**Diagonal Control**
Two outputs can be switched simultaneously. The output direction to joystick x-y data is shown on the side.

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## PC Setup for Output Operation

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## R-Net Specialty Control: IR Transmitter

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## IR Transmitter

- The OMNI includes and IR Transmitter and receiver that allows the OMNI to replicate commonly used IR devices, such as remote controls for TV's, DVD's, Cable/Satellite or environmental controls such as automatic door openers.

IR Appliances Listing

When unit is transmitting selected command will show up Red in the listing

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## OMNI w/ IR Setup & Code Save

Accessing the IR setup

| | |
|---|---|
| Background | > |
| IR Set Up | > |
| Exit | |
| - - - - - - - - - - - | |
| Set Time | > |

Learn Code
Exit

Select learn code by using right button while command is highlighted

IR setup Menu

| | |
|---|---|
| TV | > |
| Cable/Satellite | > |
| DVD 1 | > |
| DVD Recorder | > |
| Music | > |

Learn Code
Exit

Point the items Channel Up at the OMNI Receiver and press twice

If a command is checked this means it is setup

On/Off ✓
Channel Up
Channel Down
Volume Up
Volume Down

A check denotes a successful operation

An X denotes unsuccessful operation

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## Enable/Disable IR Codes

- To Enable a Code use the + sign on the front pad and a Check will appear

- To Disable a Code use the - sign on the front pad and an X will appear

**Deleting Codes**
*Note: It must be have power recycled to delete all codes*

Learn Code
Delete Code
Exit

To Delete a Code highlight the specific command and then press right button

Menu >
Delete all Codes
Exit
- - - - - - - - - - -
On/Off

To Delete a Code pick from Submenu and it will delete all codes

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## OMNI Default Menu

| TV1 | | DVD1 | |
|-----|-----|------|-----|
| On/Off | | On/Off | |
| Channel Up | | Play | |
| Channel Down | | Stop | |
| Volume Up | | Pause | |
| Volume Down | | Fast Fwd | |
| Channel Selection | | Fast Rev | |
| 0 | | DVD Record | |
| 1 | | On/Off | |
| 2 | | Play | |
| 3 | | Stop | |
| 4 | | Pause | |
| 5 | | Fast Fwd | |
| 6 | | Fast Rev | |
| 7 | | Menu | |
| 8 | | Up | |
| 9 | | Down | |
| Input | | Left | |
| Select/OK | | Right | |
| Cable/Satellite | | Select/OK | |
| On/Off | | Record | |
| TV Guide | | Timer Record | |
| Up | | Record Mode | |
| Down | | Music | |
| Left | | On/Off | |
| Right | | Play | |
| Select/OK | | Stop | |
| Information | | Volume Up | |
| Page Up | | Volume Down | |
| Page Down | | Pause | |
| Red | | Fast Fwd | |
| Green | | CD Changer | |
| Yellow | | AM | |
| Blue | | FM | |
| | | Search | |
| | | Preset | |

| Device 1 |
|-----------|
| Command 1 |
| Command 2 |
| Command 3 |
| Command 4 |
| Command 5 |
| Command 6 |
| Command 7 |
| Command 8 |

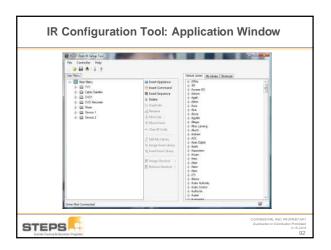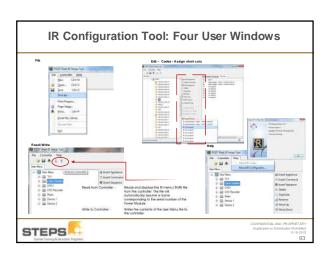| Device 2 |
|-----------|
| Command 1 |
| Command 2 |
| Command 3 |
| Command 4 |
| Command 5 |
| Command 6 |
| Command 7 |

**STEPS**

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## IR Configuration Tool

- The IR configuration tool is a PC based application that allows the user to
  - Read and Write IR menus from and to an R-net Control System
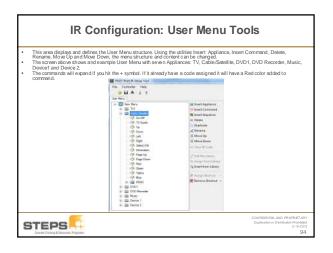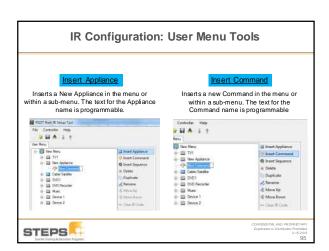  - Create IR menus.
  - Change IR menus.
  - Save IR menus.

**STEPS**

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## IR Configuration Tool

- The IR configuration tool is a PC based application that allows the user to
  - Read and Write IR menus from and to an R-net Control System
  - Create IR menus.
  - Change IR menus.
  - Save IR menus.

**STEPS**

## IR Configuration Tool

- Clicking "Continue" opens the IR Configuration Window.  To begin using the IR Configurator, one of three things must occur:
  - A new file must be opened
  - An existing file must be opened
  - A file must be read from the Control System

## IR Configuration Tool:  Application Window

## IR Configuration Tool:  Four User Windows

## IR Configuration: User Menu Tools

- This area displays and defines the User Menu structure. Using the utilities Insert Appliance, Insert Command, Delete, Rename, Move Up and Move Down, the menu structure and content can be changed.
- The screen above shows and example User Menu with seven Appliances: TV, Cable/Satellite, DVD1, DVD Recorder, Music, Device1 and Device 2.
- The commands will expand if you hit the + symbol. If it already have a code assigned it will have a Red color added to command.

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## IR Configuration: User Menu Tools

**Insert Appliance**

Inserts a New Appliance in the menu or within a sub-menu. The text for the Appliance name is programmable.

**Insert Command**

Inserts a new Command in the menu or within a sub-menu. The text for the Command name is programmable

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## Assignable Buttons
## Since February 12, 2011

*RTMA-107061 – present*

*PLS-102222 - present*

*S63A- 143142 - present*

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## Assignable Buttons - Overview

- The Assignable Buttons feature is a proprietary feature owned by Sunrise Medical.
- It enables the re-assignment of buttons and jacks on joysticks and specialty control modules.
- When using Assignable Buttons, selected buttons and jacks can support up to two features.
- The second feature is controlled by time.
- If a button or jack is held closed for longer than the Second Function Time, the assigned second function will be activated.
- The color joystick chosen by Sunrise NA uses speed pots which disable the Speed Up and Speed Down buttons.
- Using the Assignable Buttons feature users will now be able to use the Speed Up and Speed Down buttons for a dealer settable action.
- By default the second function of the Speed buttons will be Tilt up and Tilt down respectively.
- Color Joystick now supports stereo-jacks in both positions. This allows the assignment of two functions to the Profile/Mode jack.
- The functions of the On/Off jack are not changed and are not assignable.

## Assignable Buttons: Breaking News

- A late breaking feature for Assignable buttons is that the second function time is dealer settable.
  - The Dealer PC programmer upgrade is required to correctly set the assignable buttons features.
    - This can be downloaded from a link to PG Drives from the Sunrise website from the product pages -> PG Drives Technology

## Assignable Buttons: Hardware Overview

- The following input modules support Assignable Buttons
  - LED JSM
  - Color JSM
  - OMNI Specialty Control Display
  - Bluetooth module

- Color joysticks with stereo jack.
  - This is a new hardware feature being introduced to NA along with Assignable Buttons.
  - Stereo Jacks have been installed in color joysticks delivered to Sunrise beginning in June 2010

- Monochrome joysticks - do not support Assignable Buttons.
  - Only the LED and Color joysticks have implemented the Assignable Buttons feature. Monochrome joysticks do not currently contain stereo jacks.

- Assignable Buttons features are not available with on-board programming (OBP) or with the Diagnostic Test Tool (DTT)

## Assignable Buttons: Software Overview

- Controller Personality (rnd) file.
  - This file is loaded into Sunrise controllers during the end of line process.
  - It is also necessary to be activated within the PC Programmer (either Dealer or OEM) to display or modify the Assignable Buttons features.
  - The Controller Personality file controls access levels of parameters and features.
- Assignable Buttons features will be enabled on all chairs.
  - Second function time will be set to 1 second. This is an OEM only parameter.
  - Dealer kits will continue to contain the standard version of the Dealer PC Programmer
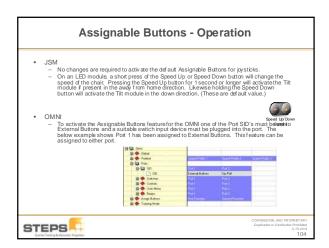  - Sunrise Medical has a link to the Sunrise Dealer PC Programmer.
  - Latching actuators are not required at this time – but may be implemented at a later date. The next page gives details on how to download the latest dongle software.

STEPS

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## Website Link to Upgrade: Dongle Software

STEPS

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## Website Link to Upgrade Dongle Software



The details above will guarantee genuine Sunrise Software at no extra cost.

STEPS

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## Website Link to Upgrade Dongle Software

Welcome to the PGDT Secure Support Resource Terminal

If you are already a registered user with our scheme, please login below to access support resources.

Username: [jabalen@pgdt.com]
Password: [••••••]

[LOGIN] | I Forgotten Password

INCORRECT USERNAME OR PASSWORD

Not a registered user? Please click here for details on how to join

Once Logged in you will be able to save the File onto your PC
or Laptop and can run EXE file to upgrade your software

PG DRIVES TECHNOLOGY                    SECURE SUPPORT
                                        RESOURCE TERMINAL

PGDT Secure Support Resource Terminal

USER: SUNRISE US DEALER ACCOUNT

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Sunrise Training & Education Programs

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*3-15-2013*
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## Assignable Buttons - Operation

- JSM
  - No changes are required to activate the default Assignable Buttons for joysticks.
  - On an LED module, a short press of the Speed Up or Speed Down button will change the speed of the chair. Pressing the Speed Up button for 1 second or longer will activate the Tilt module if present in the away from home direction. Likewise holding the Speed Down button will activate the Tilt module in the down direction. (These are default value.)

- OMNI
  - To activate the Assignable Buttons feature for the OMNI one of the Port SID's must be set to External Buttons and a suitable switch input device must be plugged into the port. The below example shows Port 1 has been assigned to External Buttons. This feature can be assigned to either port.

Speed Up Down
Buttons

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*3-15-2013*
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## Assignable Buttons

- All Color and LED **R-Net** Joystick buttons have an assigned preset function that relates to the symbol shown on the key

- Aside from the On/Off toggle switch, all these buttons can be assigned with other functions using the PC programmer

- Up to 2 functions can be programmed to a button. The functions are separated by the amount of time the button is depressed.

- The time between a "short" and a "long" press can be programmed

Example of two functions

LED Joystick          Color Joystick

MODE   Short hit (less than 1 second) switches modes

MODE   Long hit (more than 1 second) tilts seat back

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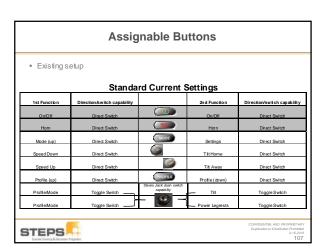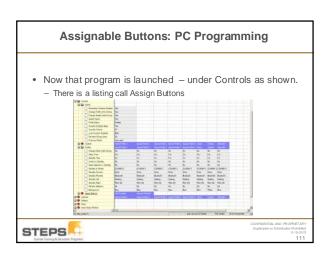*3-15-2013*
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## Assignable Buttons

- The button functions can also be assigned a toggle and/or latched capability
- Rule of thumb!! Don't put anything that will run for any length of time (like and actuator) on the first function. Otherwise a may take 20 hits to tilt a seat back.

**Example of direct functions**

**MODE** 1st Function

Short hit (less than 1 second) switches modes – **direct function**

**MODE** 2nd Function

Long hit (more than 1 second) tilts seat back – **direct function**

**Example of toggle**

**MODE** 1st Function

Short hit (less than 1 second) switches modes – **direct function**

**MODE** 2nd Function

Long hit (more than 1 second) tilts seat back first long hit, tilts seat forward second long hit – **toggle function**

---

## Assignable Buttons

- Existing setup

### Standard Current Settings

| 1st Function | Direction/switch capability | | 2nd Function | Direction/switch capability |
|---|---|---|---|---|
| On/Off | Direct Switch | | On/Off | Direct Switch |
| Horn | Direct Switch | | Horn | Direct Switch |
| Mode (up) | Direct Switch | | Settings | Direct Switch |
| Speed Down | Direct Switch | | Tilt Home | Direct Switch |
| Speed Up | Direct Switch | | Tilt Away | Direct Switch |
| Profile (up) | Direct Switch | | Profile (down) | Direct Switch |
| Profile/Mode | Toggle Switch | Stereo Jack dual- switch capability | Tilt | Toggle Switch |
| Profile/Mode | Toggle Switch | | Power Legrests | Toggle Switch |

---

## Assignable Buttons

- Beginning Sept - 2011 these second function settings will be based on the chair configuration

### Tilt Settings

| 1st Function | Direction/switch capability | | 2nd Function | Direction/switch capability |
|---|---|---|---|---|
| On/Off | Direct Switch | | On/Off | Direct Switch |
| Horn | Direct Switch | | Horn | Direct Switch |
| Mode (up) | Direct Switch | | Settings | Direct Switch |
| Speed Down | Direct Switch | | Tilt Home | Direct Switch |
| Speed Up | Direct Switch | | Tilt Away | Direct Switch |
| Profile (up) | Direct Switch | | Profile (down) | Direct Switch |
| Profile/Mode | Toggle Switch | Stereo Jack dual- switch capability | Tilt Home | Toggle Switch |
| Profile/Mode | Toggle Switch | | Tilt Away | Toggle Switch |

## Assignable Buttons

### Power Legrest Settings

| 1st Function | Direction/switch capability | | 2nd Function | Direction/switch capability |
|---|---|---|---|---|
| On/Off | Direct Switch | | On/Off | Direct Switch |
| Horn | Direct Switch | | Horn | Direct Switch |
| Mode (up) | Direct Switch | | Settings | Direct Switch |
| Speed Down | Direct Switch | | Left/Extend Leg | Toggle Switch |
| Speed Up | Direct Switch | | Right/Extend Leg | Toggle Switch |
| Profile (up) | Direct Switch | | Both Legrests | Toggle Switch |
| Profile/Mode | Toggle Switch | *Stereo Jack: dual- switch capability* | Left/Extend Leg | Toggle Switch |
| Profile/Mode | Toggle Switch | | Right/Extend Leg | Toggle Switch |

---

## Assignable Buttons

### Tilt & Power Legrest Settings

| 1st Function | Direction/switch capability | | 2nd Function | Direction/switch capability |
|---|---|---|---|---|
| On/Off | Direct Switch | | On/Off | Direct Switch |
| Horn | Direct Switch | | Horn | Direct Switch |
| Mode (up) | Direct Switch | | Settings | Direct Switch |
| Speed Down | Direct Switch | | Left/Extend Leg | Toggle Switch |
| Speed Up | Direct Switch | | Right/Extend Leg | Toggle Switch |
| Profile (up) | Direct Switch | | Both Legrests | Toggle Switch |
| Profile/Mode | Toggle Switch | *Stereo Jack: dual- switch capability* | Left/Extend Leg | Toggle Switch |
| Profile/Mode | Toggle Switch | | Right/Extend Leg | Toggle Switch |

---

## Assignable Buttons: PC Programming

- Now that program is launched – under Controls as shown.
  - There is a listing call Assign Buttons

## Assignable Buttons: PC Programming

Below you can clearly see the First Function and the 2nd - Assigned function.

STEPS

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## Assignable Buttons: PC Programming

- First and Second Function
  - Assigned function.

STEPS

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## Assignable Buttons: PC Programming



Example of choosing Speed Down as Function – and Tilt Down as Second Function by Check mark.

STEPS

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## Assignable Buttons: PC Programming



Example of IR Configurator the Assignable Short Cuts. There are Up to 8 Short Cuts available.

---

## Assignable Buttons: PC Programming



Example Assign Buttons setting from the OMNI

(The next page describes in detail these Buttons)

---

## Assignable Buttons: OMNI

- To suit specialist user preferences, up to five of a Specialty Input Device's buttons can be programmed to have differing first and second functions.
  - First Function
    - Operates on a short depression and release of the button, while the second function operates if the button is held depressed for a period of time.
  - Second Function (The Parameter) Time
    - Sets the period of time the button must be depressed for its second function to operate. Note, if the first and second functions are set to be the same, then the function will operate on the depression of the button.
- The buttons that can be programmed with different functionality include:
  - Forward
  - Reverse
  - Left
  - Right
  - Fifth
- To set the button functions, there are programmable parameters with the same names as the buttons and each has a First Function and a Second Function setting.

## Assignable Buttons: OMNI

- Enables Stereo Jack on Color JSM.
  - Does nothing if applied to a unit without a Stereo Jack
  - *(example is an OEM parameter)*

## Assignable Buttons: Shortcuts

## Assignable Shortcuts: Saving To System

## Pulse 6 – Mid Wheel Drive
## Three Models

**Pulse 6 BC**
**K0848**

**Pulse 6 CC**
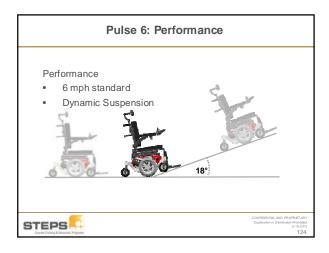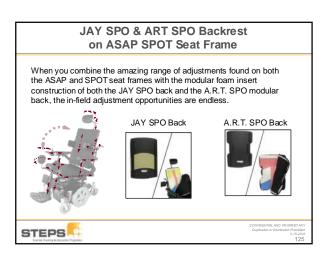**K0849**

**Pulse 6 SC**
**K0856**

---

## MWD - Pulse 6 Specifications

- HCPCS Code
  - Pulse 6 BC: K0848
  - Pulse 6 CC: K0849
  - Pulse 6 SC: K0856
- Drive Wheel Position
  - MWD
- Speed
  - 6.0 mph
- Drive Wheel Tires
  - 13"
- Battery Type
  - 22 NF
- Turning Radius
  - 22"
- Product Weight
  - 235 - 260 lbs.

- User Weight Capacity
  - 300 lbs.
- Overall Base Width
  - 24.5"
- Overall Length
  - 33.9"
- Seat Width
  - 12" – 22"
- Seat Depth
  - 12" – 22"
- Seat to Floor Height
  - BC: 16.5", 17.5", 18.5"
  - CC: 17", 18", 19"
  - SC: 17.5", 18", 19.5"

---

## Pulse 6: Footprint

Performance
- Compact Footprint

24"

33.9"

## Pulse 6: Performance

Performance
- 6 mph standard
- Dynamic Suspension

18°

STEPS

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## JAY SPO & ART SPO Backrest
## on ASAP SPOT Seat Frame

When you combine the amazing range of adjustments found on both the ASAP and SPOT seat frames with the modular foam insert construction of both the JAY SPO back and the A.R.T. SPO modular back, the in-field adjustment opportunities are endless.

JAY SPO Back          A.R.T. SPO Back

STEPS

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## Pulse 6: Tilt

Single Power Option Tilt
- aka "SPOT" Tilt
- As low as 17" STFH
- 50 degree range

STEPS

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## Pulse: Hanger Options

- Fixed Centermount
- 90 deg
- 75 deg taper
- 70 deg Swing-away
- 65 deg Swing-away
- Power Center mount single and Ped.

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## ASAP II Seating Adjustments

- Check all bolts and if you run into any of the bolts not matching see bottom of Seat Frame depicted below 2 adjustment area of inside where frame inserts and outside where frame attaches.

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## ASAP II Seating Adjustments

- Check to make sure all parts are tightened and check width 16" wide complete and measures up to expectations

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## Cantilever Arm Adjustment

1. The Cantilevered Armrest angle adjust range is from 0° to 40° in 5° increments. To adjust the armrest angle up or down, loosen the pivot bolt (A) and unscrew the 5mm bolt (B) using a Hex key  Adjust as necessary, using either the inside or outside bolt hole (C) and then re-tighten bolts to specifications.

2. Height adjustment for the armrest also utilizes the 5mm Hex Key. Loosen the bolt as shown in pic 2 and move the armrest up or down.
Once desired height is acheived, re-tighten the bolts on both sides to specifications

3. For User-in-chair angle adjustments, Loosen the set screw with a 5mm Hex Key as shown in Pic 3 adjust the armrest angle and then tighten the set screw at desired angle. Pic 4.

## Pulse: Tilt Module
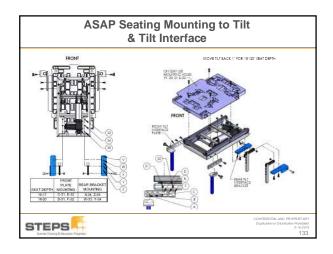
- Tilt Module mounts between the ASAP seat and power base
- **The module is replaced as an entire unit**

- Tilt modules can be added after initial purchase if necessary

## Retro Kit

Note: If adding tilt to a chair w/o tilt, Retro Kit must be ordered and the following electronics must be ordered separately:

- VR2 w/ thru drive (Joystick-105376 & Controller – 104451)
- R-net or VR2 w/ Toggle (Toggle retro kit – 110842)
- R-net w/ thru drive (no other items needed)

| Pos. | Item Number | Description | Remarks |
|---|---|---|---|
| 1,4 | 106230 | MDL PWR TILT SPOT ADJ LIM 16 | |
| 2 | 056028 | SHCS M6 X 1.25 X 25 | |
| 3 | 625953-040 | HARNESS DELPHI ACTUATOR 400mm | |
| 4 | 106494 | Actuator kit | |
| 5 | 104602 | INTERFACE/POST ASSM KIT | |
| 1,5 | 110844 | PULSE TILT RETRO KIT | |

**ASAP Seating Mounting to Tilt & Tilt Interface**

FRONT

MOVE TILT BACK 1" FOR 18'-20' SEAT DEPTH

ON SEAT USE MOUNTING HOLES 19, 20, 21 & 22

FRONT

FRONT TILT INTERFACE PLATE

REAR TILT INTERFACE BRACKET

| SEAT DEPTH | FRONT PLATE MOUNTING | REAR BRACKET MOUNTING |
|---|---|---|
| 16-17 | C-31, E-32 | X-34, Z-35 |
| 18-20 | D-31, F-32 | W-33, Y-34 |

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**Captains Seat – Added to Pulse**

- The Pulse offers a Captains Seat chair with moveable seat.

- The action to operate is release the handle for 135 degrees of Recline or to fold all the way down as shown.

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**Captains Seat – Legs**



- The Footrest-mount is even with front of seat pan bolts mount through with some adjustability

- The Seat Posts in front and back have 3 adjustments

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## Captains Seat – Added to Pulse

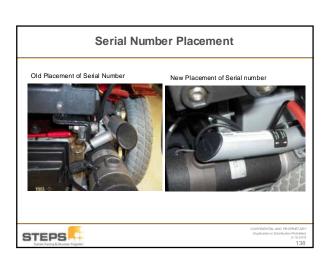- The adjustment of bottom seat pan can be done through the top



- Or can be adjusted by moving the brackets on the side
  - It has 3" of depth adjustment in 1" increments
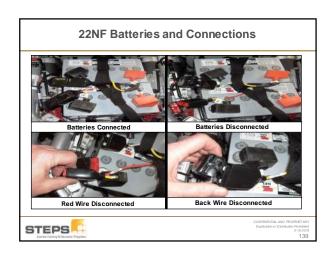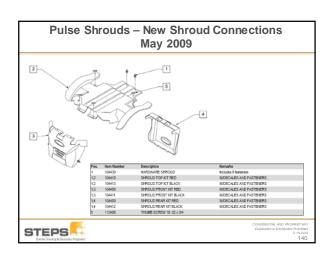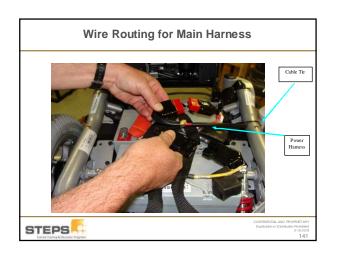
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## Harness Routing Instructions

For chairs with tilt install the adaptor harness.
1. The 3-way connector plugs into the controller OBC port.
2. The 6-way connector accepts the actuator harness from the tilt.
3. The 4-way connector mates either to the TM40 flying lead or the drive through harness.



Actuator Adaptor Connector

Drive-Through Actuator Harness
(Drive-through tilts only)

VR2-90 Controller Connector View

See the photos in upcoming slides

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## Serial Number Placement

Old Placement of Serial Number

New Placement of Serial number

**22NF Batteries and Connections**

Batteries Connected | Batteries Disconnected

Red Wire Disconnected | Back Wire Disconnected

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**Pulse Shrouds – New Shroud Connections
May 2009**



| Pos. | Item Number | Description | Remarks |
|---|---|---|---|
| 1 | 104439 | HARDWARE SHROUD | Includes 5 fasteners |
| 1.2 | 104410 | SHROUD TOP KIT RED | W/DECALES AND FASTENERS |
| 1.2 | 104413 | SHROUD TOP KIT BLACK | W/DECALES AND FASTENERS |
| 1.3 | 104408 | SHROUD FRONT KIT RED | W/DECALES AND FASTENERS |
| 1.3 | 104411 | SHROUD FRONT KIT BLACK | W/DECALES AND FASTENERS |
| 1.4 | 104409 | SHROUD REAR KIT RED | W/DECALES AND FASTENERS |
| 1.4 | 104412 | SHROUD REAR KIT BLACK | W/DECALES AND FASTENERS |
| 5 | 112406 | THUMB SCREW 10 -32 x 3/4 | |

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**Wire Routing for Main Harness**



Cable Tie

Power Harness

## Wire Routing for Main Harness

- **Inline fuse requirement**: in order to satisfy a strict reading of ANSI/RESNA section 14 and properly protect the power wiring against over-current faults, a protection device must be placed as close to the battery terminal as possible. The circuit breakers we use do not lend themselves to this, so an inline fuse near the battery post is the preferred solution. These fuses are required whether the breaker is retained or not.
- Advanced electronic controls: The motor controllers that have become industry standard over the last 20 years now handle the motor overload protection function previously handled by the circuit breaker. The onboard microprocessor tracks the motor currents over time and reduces them according to parameters determined by motor and chair testing. In fact, because of PWM technology efficiency, the circuit breaker no longer sees enough current in a stall condition to properly protect the motors. This must be done by monitoring not the battery current but the actual motor currents as the controller does.

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## To Remove Motor Assembly



Remove bolt from front arm first

Bolt with spacer & outside washer
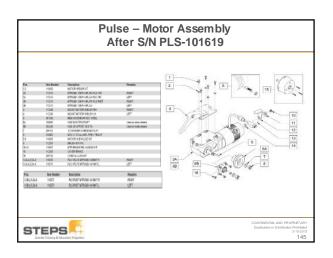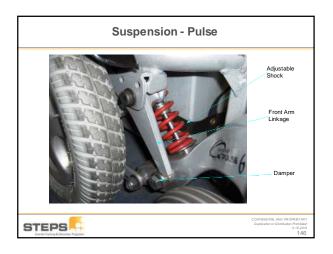
Bolt with spacer & inside washer
Don't reverse linkage small offset

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## Pulse Motor Assembly



| Pos. | Item Number | Description | Remarks |
|---|---|---|---|
| 1,2,3A,1D-14 | 104222 | MOTOR ASSEM ELECTROCRAFT L VR2 | LEFT - PULSE 6 W/ VR2 |
| 1,2,3A,1D-14 | 104223 | MOTOR ASSEM ELECTROCRAFT R VR2 | RIGHT - PULSE 6 W/ VR2 |
| 1,2,3B,1D-14 | 104129 | MOTOR ASSEM ELECTROCRAFT R Rivet | RIGHT - PULSE 6 W/ Rivet |
| 1,2,3B,1D-14 | 104130 | MOTOR ASSEM ELECTROCRAFT L Rivet | LEFT - PULSE 6 W/ Rivet |
| 5 | 103923 | MOUNT MOTOR WELDMENT L | LEFT |
| 5 | 103926 | MOUNT MOTOR WELDMENT R | RIGHT |
| 8,9 | 105635 | COG RELEASE HANDLE AND PINS | PAIR |
| 1,2, 3A,4-14 | 105426 | MOTOR ASSEM EC L VR2 W/COG | LEFT - PULSE 6 W/ VR2 |
| 1,2, 3A,4-14 | 105429 | MOTOR ASSEM EC R VR2 W/COG | RIGHT - PULSE 6 W/ VR2 |
| 1,2, 3B,4-14 | 105419 | MOTOR ASSEM EC L DE W/COG | LEFT - PULSE 6 W/ Rivet |
| 1,2, 3B,4-14 | 105427 | MOTOR ASSEM EC R DE W/COG | RIGHT - PULSE 6 W/ Rivet |
| 15 | 139197 | BRUSHCAP SET ASI (2 POLE) | 2 brushes, 2 caps |

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**Pulse – Motor Assembly**
**After S/N PLS-101619**



**Suspension - Pulse**



- Adjustable Shock
- Front Arm Linkage
- Damper

**Suspension - Pulse**

## Controllers Mount with Positive Lock



Easy removal without tools
Locks tight into frame

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## Rehab Power Ladder Example

**Rear Wheel Drive**



Quickie 646
K0877 & K0884

**Quickie S636**
K0856 & K0861

Quickie P222 SE
K0877

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## Quickie S-646 SE & P-222 SE

Updated - May 21, 2012

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## Changes to S646 and P222SE

- Standardize Motors and Electronics across the entire power portfolio.
- Simplify overall offering.
- Increase overall reliability.
- Update electronics to a more robust solution.
- Add an LED package so Europe can access these same products. The LED package is also becoming a popular group 4 option in the US.

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## Overview of the Upgrade

- Highlighted below are the primary changes to both the Quickie S-646 SE, Quickie S-222 SE, and in some cases the Quickie S-636

| | Quickie S-636 (with standard motor package) | Quickie S-636 (with torque motor package) | Quickie S-636 (with community motor package) | Quickie S-646 SE | Quickie P-222 SE |
|---|---|---|---|---|---|
| HCPCS Code | K0856, K0861 | K0856, K0861 | K0856, K0861 | K0868, K0877, K0884 | K0868, K0877 |
| Speed | 6.5 mph | 6 mph (25% more torque) | 8.5 mph | 8.5 mph | 8.5 mph |
| User Weight Limit | 300 lbs | 400 lbs | 300 lbs | 250 lbs | 350 lbs |
| Upcharge | 0 | $500 | $1,000 | $0 | $0 |
| Motors | Linix Motors | Linix Motors | Linix Motors | Linix Motors | Linix Motors |
| Electronics | VR2, R-net | VR2, R-net | VR2, R-net | VR2, R-net | VR2, R-net |
| Power Tilt | TRAX seating with integrated Tilt | TRAX seating with integrated Tilt | TRAX seating with integrated Tilt | TRAX seating with integrated Tilt | Rehab Tilt |
| Power Recline | Standard Rehab Recline Seat | Standard Rehab Recline Seat | Standard Rehab Recline Seat | Standard Rehab Recline Seat | Not Available |
| LED Light Package | Not Available | Not Available | Not Available | Available | Available |
| All available Quickiecolors | Available | Available | Available | Available | Available |

---

## Benefits to This Change

| New Features | Benefits: | |
|---|---|---|
| Common Electronics Platform | Helps Reduce Inventory - Eliminates need to inventory Omni as electronics - Reduce overall inventory cost - Increase familiarity | Plug and Play Capability - Can swap R-net joysticks/Omni input devices who don't need to reprogram chair - Omni supports up to 2 different input devices |
| Common Motor Mix | Familiarity - Techs familiar with the same motor across multiple lines | Opens up HD option in Group 3 - The Heavy Duty option is much more popular in the Group 3 coding category. By offering this in the Group 3 category, there is an increase and potential for more business - Also opens a high performance option for the Quickie |
| Reduced Complexity | Harnesses are Modular, i.e., a Specific Harness for Each Piece of the System - In many cases it eliminates the need for multiple harness lengths, which simplifies the ordering process - Reduces the need to custom rig harnesses when moving a seating platform | Replaced Circuit Breakers with Inline Fuse - Circuit breakers protect against over heating, but do not protect against things like a dead short - Controllers now protects against overheating - Circuit breakers degrade some every time they are tripped - in |
| Reliability and Performance | Proven Base Design - Over 10 years of proven performance | Proven Electronics - R6 Drives VR2 and R-net systems are so reliable that they are used by a number of prominent power wheelchair manufacturers throughout the industry |

## Common Electronics Platform

| Common Electronics Platform | Helps Reduce Inventory | Plug and Play Capability |
|---|---|---|
| | - *Eliminate need to inventory Qtronics electronics*<br>- *Reduce overall inventory cost*<br>- *Increase familiarity* | - *Can swap R-net joysticks/Omni input devices without need to reprogram chair*<br>- *Omni supports up to 2 different input devices* |

| Programmability | Improved Driving Algorithms | More Joystick Options |
|---|---|---|
| - *Dealers have option to individually program joystick/Omni control buttons/jacks with primary and secondary functionality. Helps users with limited dexterity and/or cognitive ability more easily operate their chairs. Eliminates complex menu selections.*<br>- *On-board programming for Joysticks with a display*<br>- *Unique programming of profiles including the ability to mix proportional and non-proportional controls on one chair* | - *More intuitive handling*<br>- *More fluid transitions* | - *More profiles*<br>- *Charging through the joystick*<br>- *Color display and real-time clock*<br>- *IR and Bluetooth availability using the Omni display* |

---

## Same Motor Type

| Common Motor Mix | Familiarity | Opens up HD option in Group 3 |
|---|---|---|
| | - *Techs familiar with the same motor across multiple lines* | - *The Heavy Duty option is much more popular in the Group 3 coding category.*<br>- *Also opens a high performance option for the Quickie* |

---

## Reducing Complexity

| Reduced Complexity | Harnesses are Modular, i.e., a Specific Harness for Each Piece of the System | Replaced Circuit Breakers with Inline Fuse |
|---|---|---|
| | - *In many cases it eliminates the need for multiple harness lengths, which simplifies the ordering process*<br>- *Reduces the need to custom rig harnesses when moving a seating platf* | - *Circuit breakers protect against over heating, but do not protect against things like a dead short. Controllers now protect against overheating*<br>- *Circuit breakers degrade some every time they are tripped*<br>- *Inl* |

## Reliability and Performance

| Reliability and Performance | Proven Base Design<br>- Over 10 years of proven performance | Proven Electronics<br>- PG Drives VR2 and R-net systems are so reliable that they are used by a number of prominent power wheelchair manufacturers throughout the industry |
|---|---|---|
|  | Proven Motors<br>- Less than a 1% return rate, lowest in company history<br>- Same proven motor as used on the QM-7 series , S-636, Pulse 6, and Rhythm<br>- Use unique dual end-of-line inspection system: both at vendor and at Quickie factory<br>- More reliable break-release design | Power Recline Seating System<br>- Moving from Smart seat to Rehab Recline: less complex |

STEPS

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## LED Package

| L E D Package | Hazard and Turn Lights<br>- Great for night driving – outdoor safety<br>- Increasing in popularity for group 4 chairs<br>- Can be funded via: Workman's comp, State Medicaid, designation as a community chair |
|---|---|

Front Lights

Rear Lights

STEPS

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## A Power Portfolio Example: Quickie

- Rear Wheel Drive (RWD)
  - S-636/S-646
  - P222 SE
- Mid Wheel Drive (MWD)
  - Pulse 6
  - QM 7 Series

STEPS

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## Battery Charger – BATC8-CT

- **Operation of Charger**
  1. Green Flash - indicates power is on
  2. Orange Flash - indicates pre-charge
  3. Orange – indicates charging
  4. Green & Orange Flash – 80% charge rate
  5. Green – fully charged

160

## Back of Battery Charger



Inhibit

+ Positive

- Negative

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## Rear Wheel Drive - S636

S636
- Group 3
- Rnet and Linix motors.
- SC and MPC
- Single motor package.
- Same great features as S646

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## RWD - S636 - Base Components

### Short Wheelbase

163

## Shorter Wheel Base For Tilt and Recline



During tilt and recline, the dynamic rear anti-tip suspension is locked down (release levers open). Because the anti-tip is locked, the S-636 is able to support a shorter wheel base. Bottom line: shorter wheel base = greater maneuverability.

*Seat Down – Dynamic Anti-Tip Release Levers are depressed and anti-tip suspension is enabled*

*Seat Up – Dynamic Anti-Tip Release Levers are open and anti-tip suspension is disabled*

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## Rear Wheel/Mid-Wheel Hybrid



Traditional Mid-Wheel Drive Configuration

Traditional Rear Wheel Drive Configuration

- Mid-wheel drive chairs have optimal maneuverability in tight spaces

The S-636 is a rear biased mid-wheel hybrid that offers the best of both worlds

- Rear wheel drive chairs track straight at high speeds and have good curb climbing ability

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## RWD - Quickie S-636 Comparison
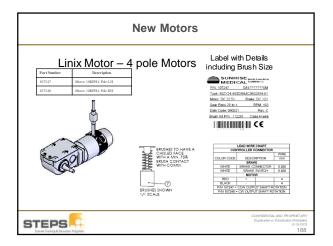
- Same Rear Wheel Drive Performance with Tilt OR Tilt and Recline capability as the S646
- Same Shock Suspension as the S646
- 6.5 mph **ONLY** w/ 0-300 lbs weight capacity
- Group 24 Batteries only
- Otherwise the same product as the S646.

**STEPS**

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## Know What's New & What's Changed

**Lever Arm Release**    Old Motors    **Gear Release Freewheel**

Changing: Difficult to engage, often requires rocking to release

Changing: Complexity of gear box makes service more difficult. Also, occasionally leaks grease.

**STEPS**

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## New Motors

### Linix Motor – 4 pole Motors

Label with Details including Brush Size

| Part Number | Description |
|---|---|
| 107247 | Motor 10KPH 4 Pole LH |
| 107248 | Motor 10KPH 4 Pole RH |

SUNRISE MEDICAL

P/N: 107247    S/N: ????????SM
Type: 90ZY24-4530/69A/C26/22554-01
Motor: DC 22.5V    Brake: DC 12V
Gear Ratio 26 to 1    RPM: 163
Date Code: 090521    Rev. C
Brush Kit P/N : 112281    Class H wire

CE

BRUSHES TO HAVE A CHISLED FACE WITH A MIN. 75% BRUSH CONTACT WITH COMM.

BRUSHES SHOWN 1/1 SCALE

| LEAD WIRE CHART | | |
|---|---|---|
| CONTROLLER CONNECTOR | | |
| COLOR CODE | DESCRIPTION | WIRE mm |
| BRAKE | | |
| WHITE | BRAKE CONNECTOR | 0.826 |
| WHITE | BRAKE SWITCH | 0.826 |
| MOTOR | | |
| RED | + | 4 |
| BLACK | - | 4 |
| P/N 107247 = CCW OUTPUT SHAFT ROTATION | | |
| P/N 107248 = CW OUTPUT SHAFT ROTATION | | |

**STEPS**

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## Know What's New & What's Changed

**Small Lever Release**    New Motors    **Geared Freewheel**



New Motors feature easy to release levers

New motors are easy to maintain and do not leak grease

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## S636 Suspension

**Dynamic Suspension**

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## Full Suspension Base



The Quickie S-636 offers independent suspension at every point of contact with the ground. This virtually guarantees a smooth ride over rough terrain.

171

## Maintain Traction Over Transitions

The dynamic anti-tip suspension can move upward to keep the rear wheels in contact with the ground during transitions.

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## Key Features Example: Quickie QM-710

**1** **Full Featured Complex Rehab Power Chair**
- Modular Components Available in 3 Models
- Industry Proven Components
- Sleek, Contoured Design

**2** **High Performance Base**
- SpiderTrac Suspension
- Traction and Articulation
- Mid-wheel Drive Intuitive Handling
- Designed with Minimal Parts Complexity

**3** **Comfortable and Modular Seating**
- Parts Commonality with Existing Group 3 Chairs

**4** **Versatile Electronics (What's New on the QM-710)**
- Non-expandable Electronic Option for Challenging Funding
- Optimized Wiring
- Assignable Buttons (R-Net Only)

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---

## QM-710 – Battery Access

- The Batteries connect up in series
- The battery in the front has a single plug Red
- The back battery has the series connection and the Black connector for control wiring harness connection.



Front Battery

Rear Battery

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---

## QM-710 - Full Featured Complex Rehab Power Chair

**Modular Components Available in 3 Models**
- Quickie QM-710 (BC) – No Power Option Base with ASAP II Rehab Seat
- Quickie QM-710 (SC) – Single Power Option Tilt (SPOT) Base with ASAP II Rehab Seat
- Quickie QM-710 (MPC) – Multiple Power Option Base (SPOT Tilt and Recline) with Recline Rehab Seat

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---

## QM-710: Motors

- **Industry Proven Components** - **Linix Motors**
- Less than 1% return rate, lowest return rate in company history
- Same proven motor as used on the S-636, Pulse 6, and Rhythm
- Use unique dual end-of-line inspection system: both at vendor and at Quickie factory

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## QM-710: Sleek, Contoured Design

- Shroud Available in 5 Colors

177

## QM-710: Spider Track Suspension

- Stable, smooth transitions across multiple terrains
  - Each wheel independently suspends

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## QM-710: Spider Track Suspension

- Gas springs provide a dampen to reduce the jolt of an impact
- Example of a spring suspension
- Example of a dampened suspension

Pure Spring Suspension
Very Bouncy

Classic Cadillac Dampened Suspension
Very Smooth

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---

## QM-710: Spider Track Suspension

- When you slowly lower in a pneumatic office chair, it is the gas release that dampens the fall and/or impact.

Pneumatic Office Chair – classic example
of a dampening system

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## Triggered Gas Spring Dampening

- PREVENTS collapse of the front casters
- PREVENTS shock associated with non-suspension fixed front casters

## Triggered Gas Spring Dampening

- Gas dampening system, prevents collapse but dampens the impact
- User maintains seated position during transitions
  - Dampened contact reduces tonal responses
  - Helps prevent user displacement
  - Helps ensure a stable seating posture

## QM-710: Traction & Articulation

- Climbs 3" curbs with a 22° transition angle
  - Design maximizes front caster articulation range

## QM-710: Traction & Articulation

- Linked suspension moves casters and drive wheels in opposite directions to minimize high centering

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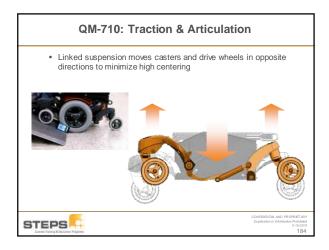
## QM-710: Designed With Minimal Parts Complexity

- 33% reduction in parts compared to legacy Quickie high-end power chairs
- Fewer parts reduces
  - Fewer parts to potentially fall out of tolerance, which reduces potential breakdowns
  - No cable adjustments
  - Fewer parts to service creates a reduced service turnaround
  - Easier for technicians to understand

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## SpiderTrac Suspension: Gas Strut

- Suspension mechanism accomplishes two tasks with one mechanism
- Suspension prevents forward pitching and high centering with a single mechanism

The rear casters rotate downward as the chair goes over a curb, this triggers a constriction of gas flow in the gas spring, which dampens front caster impact and prevents caster collapse.

The linkage between the front caster and rear caster prevent high-centering. The same gas spring is used to absorb shock for both casters.

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## Removal of Pneumatic Gas Piston

***Gas Spring Removal***

1. Remove the wheel assembly by using a 5/8" deep socket wrench to remove the 3 bolts that hold the wheel and rim in place (figure1). Before removing the Gas Spring, raise the center of the chair with a lift so that the suspension can come all of the way down.

2. For Gas Spring Removal, Remove the Lower holding bolt (A). using a 5mm Hex key (figure 2) **Note: The shocks used in this power base are pre-adjusted at the factory.**

3. Remove the top holding Bolt with a 6mm hex in Pic. 3.

---

## Removal of Pneumatic Gas Piston
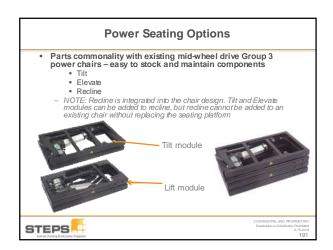
- 4. Once the top holding bolt is removed, loosen the set screw (A) as shown by using a 4mm Hex wrench (figure 4)

- 5. Once set screw is loosened, the gas spring shaft can be unscrewed and removed from the securing point as shown in (figure 5)

- 6. To re-install the Gas Spring, Reverse the previous procedures. Be sure to adjust the Gas Springs threaded shaft to the correct distance of 12-13mm for required installation clearance (C) as shown in (figure 6).
- Then tighten the Jam Nut (D) to secure the shaft at the correct distance, and replace the gas spring insert.

---

## Quickie QM-715 HD and QM-720

Quickie QM-715 – 400 lbs
Heavy Duty Package – 5 mph

Quickie QM-720 – 300 lbs
High Speed Package

| 116515 | MTR/GBX 4 POLE 6 MPH QM710 LH | Left,QM-710 |
| 116516 | MTR/GBX 4 POLE 6 MPH QM710 RH | Right,QM-710 |
| 120636 | MTR/GBX 8KPH 4POLE QM715 LH | Left,QM-715 or QM-710 High Torque |
| 120637 | MTR/GBX 8KPH 4POLE QM715 RH | Right,QM-715 or QM-710 High Torque |
| 120638 | MTR/GBX 13KPH 4POLE QM720 LH | Left, QM-720 or QM-710 Community Package |
| 120639 | MTR/GBX 13KPH 4POLE QM720 RH | Right,QM-720 or QM-710 Community Package |

## Tilt and Lift Seating

- The Lift and Tilt Seating Stack on top of each other

---

## Power Seating Options

- **Parts commonality with existing mid-wheel drive Group 3 power chairs – easy to stock and maintain components**
  - Tilt
  - Elevate
  - Recline
  - *NOTE: Recline is integrated into the chair design. Tilt and Elevate modules can be added to recline, but recline cannot be added to an existing chair without replacing the seating platform*



Tilt module

Lift module

---

## Wiring for Tilt/ Lift Actuator

| Limit Switch Set | Plug Polarity |
|---|---|
| 20 Deg. | A |

CONTACT END VIEW

| PIN 1 | MOTOR + | BROWN |
|---|---|---|
| PIN 2 | | |
| PIN 3 | GND | BLACK |
| PIN 4 | INHIBIT SWITCH | ANY COLOR |
| PIN 5 | MOTOR - | BLUE |
| PIN 6 | | |

- When +24 Volts is connected to Blue/Motor -/Pin 5 and GND is connected to Brown/Motor+/Pin 1 The actuator will extend and the Lift/Tilt will go up
- When +24 Volts is connected to Brown/Motor +/Pin 1 and GND is connected to Blue/Motor-/Pin 5 The actuator will go down

PLUG (Male)
located on Tilt/Lift

WIRE INSERTION END

## New Seating Control Modules

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## 3 Seating Module Choices

**Non-expandable Electronic Option for Challenging Funding**
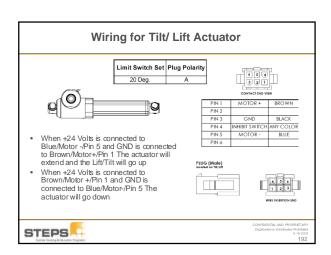
– Non-expandable 3-Axis control available in three options
  • 2-Axis tilt and lift (direct activation)
  • 3-Axis tilt and power legrests (toggle activation)
  • 3-Axis lift and power legrests (toggle activation)

2-Axis box 4.5 & 7.0
Amp box used for
Lift and Tilt

3-Axis 7.0 Amp box
used for
Tilt and Pwr Legrests

3-Axis 4.5 Amp box
used for
Lift and Pwr Legrests

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## Diagnostics Overview

• 1. Saving files – to send via E-mail – etc to make product work again.
• 2. Saving files and Diagnostic Log and opening on P.C. – look then load back to chair.
• 3. Understanding Inhibits – what is causing that flashing mode or Turtle on Screen for LCD models.
• 4. Real time Monitoring – of Motor Current – Motor Voltage – Inhibit Operation in Troubleshooting – including Seating controls and battery voltage.
• 5. Joystick Monitoring – out of neutral – switch activation.
• 6. Reading proper ohms resistance – know where and when to check resistances.
• 7. Resources such as Tech Support On-Line center for Videos – Setup Guides – OBP programming Road Maps – etc.

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## Diagnostic Procedure

- Please follow this procedure:
- Read and note the Trip Text displayed, the identified Module and the Trip Code. Switch off the control system.
- Make sure that all connectors on the listed Module and the wheelchair are mated securely.
- Check the condition of the battery.
- Find the definition of the Trip Code in this Service Guide, or go online to PGDT.com and insert code and take required action.
- Switch on the control system again and try to drive the wheelchair. If the safety circuits operate again, switch off and do not try to use the wheelchair. Contact Sunrise Technical Service.

## Display & Screen Diagnostics



- Display shows the details that are needed for a Technician to troubleshoot the problems.
- Identified Module – Identifies which module has the present problem
    –
    – PM = Power Module
    – JSM = Joystick Module
    – ISM – Intelligent Seating Module
    – OMNI – Specialty Control Device and Display
    – ATT – attendant Control

## Display & Screen Diagnostics

Trip Text

Text Version of the code



Trip Code

- – Is the Alphanumeric Code indicating the designated code number letter combination.
- In the display we have a Power Module with a Trip Text of Low Battery and a Trip Code of 2C00 – depending on type of programming device it will store either a combination of trip code and Text or Text only.
- Programmers prior only displayed Trip Codes sometimes making it hard to decide where and what to look for.

## VR2 Diagnostics
### Using PP1 or Qtronix Programmer

- Read System Log ?
- The control systems have a diagnostics log facility which stores the number of occurrences of the last eight trip codes. This allows you to view the contents. The display format is as below.
  - 1: Code 2C00, #1
  - 2: Code 3C00, #3
- No more entries
- This reads line by line as.
  - Line 1 - trip code 2C00 has occurred once
  - Line 2 - trip code 3C00 has occurred three times
- Only two trip types recorded.

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## LED Diagnostics – R-Net EL Control



**LED Control System Status Indication:** The battery gauge and Maximum Speed/Profile indicator show the status of the control System. With the help of this listing it is possible to diagnose problems that may appear drastic at first, but may have a very simple and easy to fix cause.

1. **Battery Gauge is Steady.** This indicates all is well
2. **Battery Gauge Flashes Slowly.** The control system is functioning correctly, but you should charge the battery as soon as possible.
3. **Battery Gauge Steps up:** The wheelchair batteries are being charged you will not be able to drive until chair is disconnected from charger. Switched Power On and Off again.
4. **Battery Gauge Flashes Rapidly (even when joystick released):** The control system safety circuits have operated and the control system has been prevented from moving the chair. This indicates a system trip – The R-Net has detected a problem somewhere in the wheelchairs electrical system. Please follow below procedure:
   1. Switch of the control system.
   2. Make sure that all connectors on the wheelchair and the control system are mated correctly.
   3. Check the condition of the battery.
   4. Switch the control system on again and try to drive the wheelchair. If the safety circuits operate again. Switch off and contact your service agent.
5. **Speed Indicator Ripples Outwards From Center:** In this instance the LEDS make a ripple motion starting with the Middle LED and then stepping outwards on Both sides. The Control System has detected that a new module has been added and is re-configuring. Please allow for a few seconds for this to complete
6. **Speed Indicator LED's 2 & 4 Flash:** Then the control system requires a reboot. For example, after a module re-configuration, the second and fourth speed indicator LED's will flash.
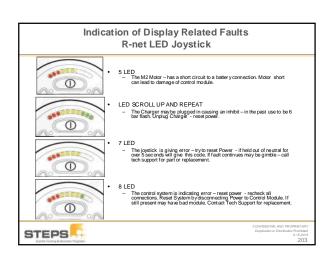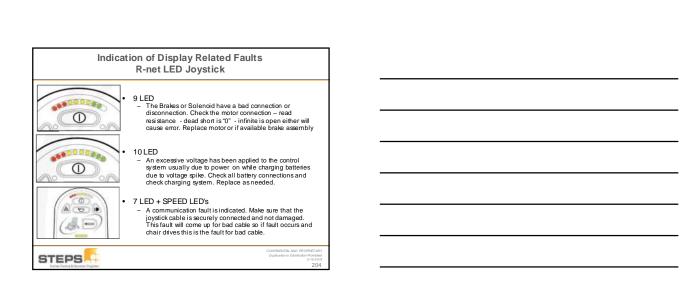
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## LED Diagnostics – R-Net EL Control

❖ Note:
If the Programmable Parameter, Motor Swap has been enabled, the left and right hand references in the table will be reversed

| | |
|---|---|
| 1 Bar | The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If the connectors are good, try charging the battery. |
| 2 Bar | The left hand motor* has a bad connection. Check the connections to the left hand motor |
| 3 Bar | The left hand motor* has a short circuit to a battery connection. Contact your service agent. |
| 4 Bar | The right hand motor* has a bad connection. Check the connections to the right hand motor. |
| 5 Bar | The right hand motor* has a short circuit to a battery connection. Contact your service agent. |
| 6 Bar | The wheelchair is being prevented from driving by an external signal. The exact cause will depend on the type of wheelchair you have, one possibility is the battery charger is connected. |
| 7 Bar | A joystick fault is indicated. Make sure that the joystick is in the center position before switching on the control system. |
| 8 Bar | A control system fault is indicated. Make sure that all connections are secure. |
| 9 Bar | The parking brakes have a bad connection. Check the parking brake and motor connections. Make sure that the control system connections are secure. |
| 10 Bar | An excessive voltage has been applied to the control system. This is usually caused by a poor battery connection. Check the battery connections. |
| 7 Bar + S | A communication fault is indicated. Make sure that joystick cable is securely connected and not damaged. |
| Actuator Flash | An Actuator trip is indicated. If more than one actuator is fitted, check which actuator is not working correctly. Check the actuator wiring. |

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## Indication of Display Related Faults
### R-net LED Joystick



- **1 LED**
  - The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If connections are good, try charging the battery.

- **2 LED**
  - The M1 Motor – has a bad connection. Check connections and resistance of motor.

- **3 LED**
  - The M1 Motor – has a short circuit to a battery connection. Motor short can lead to damage of control module.

- **4 LED**
  - The M2 Motor – has a bad connection. Check connections and resistance of motor.

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---

## Indication of Display Related Faults
### R-net LED Joystick



- **5 LED**
  - The M2 Motor – has a short circuit to a battery connection. Motor short can lead to damage of control module.

- **LED SCROLL UP AND REPEAT**
  - The Charger may be plugged in causing an inhibit – in the past use to be 6 bar flash. Unplug Charger - reset power.

- **7 LED**
  - The joystick is giving error – try to reset Power - if held out of neutral for over 5 seconds will give this code. If fault continues may be gimble – call tech support for part or replacement.

- **8 LED**
  - The control system is indicating error – reset power - recheck all connections. Reset System by disconnecting Power to Control Module. If still present may have bad module. Contact Tech Support for replacement.

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## Indication of Display Related Faults
### R-net LED Joystick



- **9 LED**
  - The Brakes or Solenoid have a bad connection or disconnection. Check the motor connection – read resistance - dead short is "0" - infinite is open either will cause error. Replace motor or if available brake assembly

- **10 LED**
  - An excessive voltage has been applied to the control system usually due to power on while charging batteries due to voltage spike. Check all battery connections and check charging system. Replace as needed.

- **7 LED + SPEED LED's**
  - A communication fault is indicated. Make sure that the joystick cable is securely connected and not damaged. This fault will come up for bad cable so if fault occurs and chair drives this is the fault for bad cable.

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**Indication of Display Related Faults**
**R-net LED Joystick**

- Actuator LEDs Flash
  - An Actuator Trip is indicated. If more than one actuator is attached, check which actuator is not working correctly. Check for resistance and if any thing is causing excessive current.



- Maximum Speed / Profile Indicator Flashes
  - This indicates the speed of the wheelchair is being limited for safety reasons. The exact reason will depend on if a seating control is on the chair or not. The most common cause is seat is elevated position.
- Maximum Speed / Profile indicator Ripples Up and Down
  - This indicates the control system is locked. Refer to next page for unlocking procedure.

---

**Diagnostic for Unlocking Unit**

**Keypad Locking**

To lock the wheelchair using the keypad;

- While the control system is switched on, depress and hold the On/off button.
- After 1 second the control system will beep. Now release the On/off button
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now locked.

The following screen will be displayed.



If an LED Joystick Module is use (EL) the Speed Indicator LED's will ripple from left to right

To unlock the wheelchair;

- If the control system has switched off, press the On/off button.
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.

The wheelchair is now unlocked and ready for use

---

**Diagnostic Text Definitions**

- The R-net has various connections that are referred to by the diagnostic text.
  - Power Module (PM)
  - Joystick Module (JSM)
  - Intelligent Seating/Lighting Module (ISM)

Joystick Error
Low Battery
High Battery
M1 Brake Error
M2 Brake Error
M1 Motor Error
M2 Motor Error
Inhibit Active
Joystick Cal Error
Latched Timeout
Brake Lamp Short
Left Lamp Short
Right Lamp Short
L Ind Lamp Short
R Ind Lamp Short
L Ind Lamp Failed
R Ind Lamp Failed
Over-current
Overtemp. (Acts)
Overtemp. (Lamps)
DRIVE Error
Memory Error
PM Memory Error
Bad Cable
Bad Settings
Module Error
System Error
SD Detached
User Switch Detached
Gone to Sleep
Charging

**Thank You For Attending!**

*Ken Kalinowski, Senior Service Technician*
*ken.kalinowski@sunmed.com*

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## Appendix A

Specialty Control Parts

OMNI Specialty Control
113220

Input / Output Module
108217

PC Programming Station
108532

(108531)
R-Net Dongle Part #

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## Appendix A

Specialty Control Parts

R-Net Attendant Control
*(includes cables)*
110845

(VR2 – 102175)
*(includes cables)*

Bus Communication Block

Communication Cable Sockets 1 - 4

108312

Blue Tooth Mouse Emulator
108218

*Note: Receiver not included*

**Appendix A**

Specialty Control Parts

115207
DTT Kit Includes Cables

VR2  and R-Net

115211 Harness DTT  - Neutrik

111423 Cable DTT R-Net

**Appendix A**

**R-net Without Power Seating**

## R-net With Dual Toggle Tilt

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## Appendix B
### Qtronix Joystick Change

- Qtronix Joystick replaced by Pilot and Joystick
  - Effective immediately on P222 SE, S-646 and S-646 SE models
  - Functions as direct replacement in most scenarios



QTRONIX JOYSTICK

PILOT + JOYSTICK

118789          118788

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## Qtronix Joystick Change

**Functionality:**
The new Pilot + joystick only is configured in two configurations with "1/8" Jack Ports" (118789) or with "Speed Pot & On/Off Switch" (118788).

The new Pilot + joystick mounts differently than the old Qtronix joystick and because of this the mounting plate needs to be changed on Fixed and Center mount Joystick Mounts and the entire Joystick arm needs to be replaced when a swing away mount is utilized. Please see below for replacement components depending on the joystick arm style.

Does your joystick utilize a Round or a Square tube?

Round Tube......

| | Fix Mount you need to order | |
|---|---|---|
| 481211 | Q-tronix to Pilot+ adapter Bracket | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |

| | Right hand Swing Away Mount you need to order | |
|---|---|---|
| 882498 | Complete Swing Away Joystick Mount | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |

| | Left hand Swing Away Mount you need to order | |
|---|---|---|
| 882499 | Complete Swing Away Joystick Mount | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |

| | Center Mount you need to order | |
|---|---|---|
| 481489 | Q-tronix to Pilot+ adapter Bracket | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |
| 221090 | 1/4-28 x 3/8 Button Head Screw | Qty - 2 |

## Qtronix Joystick Change

Square Tube.....

**Fix Mount you need to order**

| 481211 | Q-tronix to Pilot+ adapter Bracket | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |

**Right hand Swing Away Mount you need to order**

| 118824 | Complete Swing Away Joystick Mount | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |

**Left hand Swing Away Mount you need to order**

| 118825 | Complete Swing Away Joystick Mount | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |

**Center Mount you need to order**

| 481489 | Q-tronix to Pilot+ adapter Bracket | Qty - 1 |
| 220120 | 8-32 x 1/2 Socket Head Screw | Qty - 2 |
| 221090 | 1/4-28 x 3/8 Button Head Screw | Qty - 2 |

| Qtronix PN | Description | Pilot+ PN | Description | Feature Comparison | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | | Pot | Toggle | Jacks | Right Hand | Left Hand |
| 139515 | REMOTE BOX W/O JACK R S525 | 118788 | JOYSTICK P+ POT/TOG NO JACKS | √ | √ | NA | √ | NA |
| 139516 | REMOTE BOX W/JACKR S525 | 118789 | JOYSTICK P+ JACKS NO POT/TOG | | | √ | √ | NA |
| 139517 | REMOTE BOX W/O JACK L S525 | 118788 | JOYSTICK P+ POT/TOG NO JACKS | √ | √ | NA | NA | √ |
| 139518 | REMOTE BOX W/JACKL S525 | 118789 | JOYSTICK P+ JACKS NO POT/TOG | | | | NA | √ |

√ Feature Retained

Feature lost

NA Feature not available on Qtronix JS

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## Appendix C
## Pulse: ASAP Seating



**Seat Width Adjustment**

1. Remove the 5mm width-adjustment bolts (A) and the 4mm towel bar adjustment bolt (B).

2. Move the left side seat rail, armrest, and backrest assembly to the desired position. See seat width position settings (C).

3. Move the right side seat rail, armrest, and backrest assembly to the desired position. Replicate position settings used for the left side.

4. Replace the width adjustment bolts (A) and the towel bar adjustment bolt (B). (Use 10 N/m or 88.5 in/lb of torque for A and B.)

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## Pulse: ASAP Seating



**Seat Depth Adjustment**

1. Remove the 5mm depth adjustment bolts from both sides of the seat.

2. Slide the rear backrest and armrests into the desired seat depth position. Reference seat depth position patterns (A).

3. Replace both sets of depth adjustment bolts. (Use 20 N/m or 177 in/lb of torque.)

**Hanger Depth Adjustment**

1. Remove both sets of 5mm hanger depth adjustment bolts.

2. Slide both hanger receivers to the desired location. See bolt pattern seat depth position settings (B).

3. Replace both sets of depth adjustment bolts. (Use 20 N/m or 177 in/lb of torque.)

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